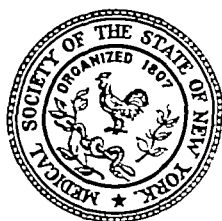


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NEW YORK STATE JOURNAL OF MEDICINE

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Editorial

July Fourth, 1941

Once again, Independence Day Ironically, such a day *was* celebrated in Czechoslovakia, October 26, in Poland, May 3, in Norway, May 17, in Belgium, July 21, in France, July 14, in Greece, March 25 Independence is something you have to do something about, you can't take it out in talk and parades or by shooting off firecrackers Independence is priceless only in orations We said that a year ago¹ Now we repeat it Actually, as the above-mentioned countries have found out, the price is a fearful one It is going up! It is a price that is not subject to political or economic controls It is imposed from without and must be paid in blood, sweat of human labor, agony of body and mind—now!

American medicine is prepared to pay it Dr Frank Lahey, of Boston, incoming president of the A M A. said in Cleveland, on June 3 "My own opinion, and I believe that it is my duty to express it, is that we are already committed to a position, whether we like it or not I myself like it We should arrive at a conviction concerning isolation Is it right? It is my conviction that it is not I prefer destruction if it need be to survival in cowering terror Give me positive commitment rather than compromising, unsatisfying safety "

In such a belief did Benjamin Rush, M D, set his signature to paper in 1776 Now, 164 years later, Dr Lahey spoke for a united medical profession when he said "We shall still have ourselves to live with

I do not believe there is a safe course

It is my conviction that a dangerous course has real advantages " It has the real advantage that it is positive, it has the real advantage that it is bold in the conviction that it is right! Such a course can command the loyalty of men and women, can stir vigorously the fires of devotion now too long banked with the bitter ashes of complacency and like to smother altogether amidst the clinkers and dross of a fatuous, futile, and chimerical security

This JOURNAL is squarely behind Dr Lahey and the President of the United States We believe with Dr Lahey that we must "establish what is to be the policy of this Nation as relates to the war situation there is nothing, and in our history never has been anything, which will influence the future of America more than the nature of this decision The real urgency of this situation is that we need outstandingly a dispersal of internal conflicts and, regardless of what we have said or thought, there must be unanimity . " United we stand, divided we fall

¹ New York State J Med. 40, No 13 983 (July 1) 1940

Industrial Physicians Needed

"The Army," says the *New York Times* editorially,¹ "has drafted its quota of physicians, with the result that there is some reason to worry how the large industrial centers will fare." Both medicine and industry are being mobilized, as the *Times* observes, the expanding army and expanding industry are making vast demands upon the personnel of mobilized medicine. It is to be remembered that the military services require about five times as many medical men per one thousand troops as are required in civilian practice.

In the February 1, 1941, issue of the *JOURNAL* we commented editorially upon the shortages in trained medical personnel to meet the needs of industrial practice under the heading, "Industrial Health and the Defense Program." In this editorial we called for "an expanded program of instruction in industrial hygiene," and said further "If the industrial health program is to become an effective measure for national defense it must be coordinated with the general plan and be adequately financed without loss of time." Some progress has been made undoubtedly but, even so, the medical service to workers in industry must be realistically approached.

"A small number of universities are now providing training courses for industrial hygienists."

"Most notable of these is the one at Harvard School of Public Health under the direction of Philip Drinker, professor of industrial hygiene, which has been supplying well-trained men to the field for many years. Others are the University of Pennsylvania Medical School, Department of Public Health and Hygiene, where industrial hygiene engineering is under the direction of Professor Theodore Hatch. Professor Donald E. Cummings, director of the Division of Industrial Hygiene, University of Colorado Medical School, is amply qualified through his practical accomplishments

in this field for training industrial hygiene engineers. The University of Pittsburgh Medical School and Johns Hopkins University have set up curricula, the latter largely for physicians in public health administration courses. Other institutions, the University of Michigan, for example, have also been interesting themselves in this field."

"The Division of Industrial Hygiene of the National Institute of Health has presented brief courses in industrial hygiene over the last five years and has directed in-service training in many of the state units. The National Conference of Governmental Industrial Hygienists, sponsored by the United States Public Health Service, has through its annual meetings been doing much in furthering the training of industrial hygiene engineers attached to federal, state, and municipal departments."

"We are drilling an Army of about 1,400,000 young men, with the prospect that the number may reach 4,000,000 if the international situation does not improve. This Army is medically cared for by regimental doctors who must practice a kind of 'socialized' medicine. Because soldiers are in the flower of life, because they are under more or less constant medical supervision, they are bound to make a commendable health record. But what of the industrial workers? Committees of able physicians have been formed by the Government to frame plans for the maintenance of industrial health. They may give advice, but they have no authority. Admirable as the medical plans are, they receive neither from the Government nor the public the wholehearted support that they deserve."

"It is easy enough to foretell what is likely to happen a year or so hence. The health record of the Army will be held up for admiration, that of industrial centers for condemnation. Inevitable and unjust comparisons will be made between Army 'socialized' medicine and the kind of medicine that physicians were able to give workers. If we are to avoid the kind

¹ *New York Times* editorial June 6, 1941

² *Industrial Hygiene* 10 No. 5 198 (May) 1941

of political medicine that physicians fear, we need a more realistic approach to the

problem of national health and a program of action that will win popular support”¹

The Problem of the Deferred Draftee

Behind the armed forces lies the shadowland of the civilian population. Within this land, the target of attack and disorganization by propaganda and the tactics of terror in modern warfare, wanders the rejected draftee. He is at loose ends, unwanted, doomed to go to and fro in the earth, and to walk up and down in it a pariah, until, like Job, he be tempted to open his mouth and say “Let the day perish wherein I was born, and the night in which it was said, There is a man child conceived.” As for that night, let darkness seize upon it, let it not be joined unto the days of the year, let it not come into the number of the months for his grief was very great.”

Seemingly despised, rejected, many men with feelings of insecurity and inferiority will shortly come to inhabit that civilian shadowland, fair prey for the propagandist, the irresponsible racketeer union agitator, the dispenser of antisocial doctrines, and the medical quack. The physical and mental problems of these deferred men are the joint responsibility of the physician who will care for them tactfully and sympathetically and of society which must make provision for their re-education in self-respect. For the solution of the difficulties of the deferred men is a matter intimately bound up in the maintenance of civilian morale.

This important sequel to the training program currently in effect is discussed in a paper on page 1339 of this issue by

Lowell S. Selling, M.D., entitled “The Mental Hygiene Aspect of the Deferred Draftee.” Leadership in coping realistically with these and many other medical problems associated with the preparedness program is essential. The American Medical Association has realized this and has endeavored for some time to exercise its unquestionably authoritative influence to have created a centralized agency in the government to deal with the problems of medicine. This JOURNAL is also of the opinion that this should be done now—without delay. As far as we are aware, nothing has been accomplished, in spite of the attempts that have been made to stress its importance to the administration.

Whether the trouble arises from stupidity, incomprehension, indifference, or ignorance we have no means of finding out. But neglect of a proper and just consideration of such recommendations has a way of imposing costly penalties and tragic consequences. Perhaps in time, if there be time, the Federal Social Security Administration will be designated as such a centralized agency. The maintenance of civilian morale would certainly seem to us to be a step in the direction of avoiding a rapidly mounting quota of antisocial insecurity, agitated by persons of questionable mental and emotional stability. We cannot urge again too strongly that the Government, give this matter immediate and purposeful consideration—*now*.

We Quote

Probably one of the best answers to the protagonists of the several forms of socialized medicine is the address delivered at the Harvard Medical School by Professor Austrian of Johns Hopkins University.¹ To do

justice, the entire speech should be reprinted but the following excerpts will emphasize the wisdom of retaining our present form of medical service.

“The study of a patient should be skillful and intelligently complete, not needlessly comprehensive. Routine performance of

¹ Austrian, A. R. *New England J. Med.* 223: 695 (1940).

needless tests indicates a lack of skillful observation and thinking, dulls clinical acumen, penalizes the patients, wastes time and material, and gives the public an incorrect view of the cost of sound medical care

"In the course of time, many sciences have become the assistants of medicine, so that diagnosis and treatment are established on a surer foundation. Sometimes, it has seemed, these helpers have altered the perspective and dimmed the aims of the helped by placing too much emphasis on the objective aspects of disease and too little on the subjective."

How is it possible to avoid, under any form of regimented medicine, the waste of time and material, the undue stress upon and abuse of laboratory aids, and the neglect to apply keen clinical judgment? "The engineer, the mechanic, and the artist of every sort work with materials of known composition, but you as a physician deal with a structure more complex, less understood, with a great many parts, all of which are not only self-wearing but must be self-repairing, and the

evidence for the defects of which may be quite elusive. To find the clues and to procure the incriminating evidence of damage will often tax you more than it does a detective."

Each year's crop of interns necessitates reiteration of admonitions against routinely ordering x-rays, hematologic studies, basal metabolism, and the numerous other tests that only an intern can think up on the spur of the moment for a new admission *before he has examined the patient completely*. What will happen to the *quality* and the *cost* of medical care under governmental supervision when the patient feels, to put it in the vernacular, that he is "entitled to the works"? Of more importance, what will happen when "observation, still the most informative of all clinical methods, seems so simple that it is practiced too little? To the trained eye, all that is seen is pregnant with information. There is opened a vista of diagnostic, therapeutic, and even prognostic data that no other single procedure could reveal."

Giardiasis

Giardiasis is an infection of the intestinal tract by the parasite *Giardia lamblia*. Its incidence in the United States varies with geographic location and it is more prevalent in the southern zones. Nutter, Rodaniche, and Palmer,¹ in their studies conducted in Chicago, found the incidence to be 1.5 per cent, although they state that this is considerably lower than usually found in the North Temperate Zone.

The symptoms presented are diarrhea, abdominal pain and flatus, fatigue, bloody stools, insomnia, vertigo, and loss of weight. In children, giardiasis may simulate celiac disease.² Duodenal drainage by the Lyon technic, with samples taken at various levels, showed the vegetative forms of *lamblia* in all but 2 cases of Nutter and his co-workers. The stools all showed the protozoan. The disease appears to be more predominant in men and occurs most frequently in the third decade of life.

The controversy over the pathogenicity of this parasite was dispelled with the introduction, in 1937, of atabrin dihydrochloride as

an effective lamblacide.³ The value of this drug in giardiasis has been confirmed both here and abroad. Nutter, *et al.*, administered 0.1 Gm. of atabrin dihydrochloride three times daily by mouth for a period of five days. This method of therapy successfully freed all patients of their infection, and the diarrhea invariably ceased. The *Giardia* cysts often disappeared as early as the third day. The toxic effect of the drug is slight and there were no severe reactions from its use. It must be noted that atabrin apparently has no effect upon other parasites in the intestinal tract.

While the *Giardia lamblia* has been described as early as 1675 by Leeuwenhoek, it is only in recent years that its significance as an etiologic factor in intestinal disease has gained prominence. One group of observers found that the incidence throughout our country was 12 per cent. The similarity of its symptomatology to other intestinal diseases calls for detailed investigation of the duodenal contents and the stools when these symptoms present themselves. Where the parasite is found, the use of atabrin, from all reports, seems to be a specific for its eradication.

¹ Nutter, P. B., Rodaniche, E. C., and Palmer, W. L. J.A.M.A. 116: 1631 (April 12) 1941.

² Veghelyi, P. Am. J. Dis. Child. 57: 894 (1939).

³ Galli-Valerio, B. Schweiz. med. Wchnschr. 67: 1181 (1937).

THE MENTAL-HYGIENE ASPECT OF THE DEFERRED DRAFTEE

LOWELL S. SELLING, M D , Dr P H , Detroit

DURING a period of national emergency the interest of the nation is focused upon the armed forces. This is as true in time of preparation for a contingent emergency as it is during actual wartime. Behind the Army lies an extensive shadowland which cannot be ignored. This shadowland is the civilian population.

The present paper is intended to emphasize the responsibility of physicians in heightening civilian morale and in making as many youngsters valuable for our Armed Forces as possible. The physician's job should not be elimination but should be prevention, correction, and treatment.

Because of the limitation of human thinking, naval and military men who are planning to defend the country must concentrate particularly upon the selecting, training, and equipping of the military and naval forces. Their interest in the equipment may project their endeavors into industry and even into labor problems but seldom into the life problems of the nation as a whole. These matters, although they may be of the utmost importance, are left, at least in this country, entirely to hit-and-miss civilian campaigns. No agency, for instance, has as yet been established to handle problems of civilian morale, and yet it was probably the collapse of civilian morale at the end of the war of 1914 to 1918 which caused the German surrender.

When there is discontent, dissatisfaction, and antagonism among the civilian population, these attitudes are reflected on the troops. It was different before the advent of quick communication when an invading army might be a month's travel away from its homeland and so might not know of any difficulties among their families and friends until the war had actually been fought to a finish, but armies today are in touch with the civilian population, and the collapse of that population can cause the collapse of army morale. This actually occurred during the spring of 1918 in the French Army and, if the United States troops had not been available to raise population morale, it might have caused an Allied defeat.

Nature of the Problem

One of the most important groups of civilians to be considered in building up civilian morale is that group of individuals whose ages would permit them to be in the Army but who, for some reason, have not been accepted. When the whole group of 900,000 men provided for under the present draft legislation has been inducted into the Army, there will remain a large group of individuals whom we, as physicians, have certified as not being able to stand side by side with the others to take part in defending the country and to engage in the educational, recreational, and experiential activities made available by the Government to their contemporaries.

At the present time, when just a few individuals have been inducted, the majority of the male population from 21 to 36 years of age consider their deferment as a matter of good luck, but this attitude will change with the growth of the Army and a number of mental-hygiene complications will arise.

This contingency has already been strongly brought to my mind because of several cases that have been seen in the Court Clinic.

One case, particularly, reveals the fact that we are going to have a number of complications on the mental-hygiene side in dealing with deferred draftees. This case was that of a youngster 18 years of age, who, with a group of five others, went to a Navy recruiting station hoping to be taken into the Service. The other five were examined and accepted by the Navy. This boy, because of eyesight just a small degree worse than that of his colleagues, was rejected. He went into a severe depression, not so severe as to indicate that he was too unbalanced and should not have been accepted for that reason, but a reaction indicating that he felt inferior and lost—his friends were leaving him and he felt that he was not good enough to go with them. He had given up his job so that he would be able to enter the Service, and he was unemployed. He was at loose ends.

Although he did not drink, someone suggested that since he was so depressed he should have a drink. He began drinking at about three o'clock in the afternoon and at eight o'clock that night entered and drove a motor car, was arrested after hitting two parked cars,

Presented at the meeting of the New York County Medical Society, February 24, 1941.

Director of the Psychopathic Clinic of the Recorder's Court, Detroit. Series NP No. 6.

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² Verheer, P. Am. J. Dis. Child. 57 694 (1939)

³ Galli-Valerio, B. Schweiz. med. Wchnschr. 67 1181 (1937)

going to the oculist, but careful, tactful advice in this sphere is of value

With regard to the matter of a neurosis or mental disturbance accompanied by hypochondriasis, one could say that this is probably not the most important topic to be considered in dealing with the deferred draftee, probably 99 out of 100 boys can be told that they are not physically well enough to go in the Army without developing any untoward symptoms

We have had, however, a case brought to our attention of a boy who was told that he had heart disease. He has now become disturbed over it, believes that he is going to die, and has been going from doctor to doctor because of it. Although each doctor must admit to him, because of his intense questioning, that the heart condition does exist, it is a mild chronic rheumatic condition of which the boy would not have been aware. There is no need for medical attention other than advice at the present time, and good hygienic behavior in the future will probably take care of the matter and allow him to have as long life as anyone could expect

The Mechanisms

The fact, however, that this boy has fallen down in competition with others probably has caused the neurosis. He feels inferior, lacks security, and has to fixate on some object or some spot that will justify him in not being able to do as well as his contemporaries. He, therefore, uses the mental mechanism of hypochondriasis with cardiac symptoms to take care of this problem

It is my opinion that lack of security and inferiority feelings will be the two primary psychologically etiologic features to be considered if we leave out those young men who were detected by the psychiatric physicians of the induction board, who are actually unstable major psychopaths or psychotic, and who cannot be assimilated in the Army

Inferiority feelings are important in all of us. Certainly, when a boy who has a bad home background but has been able to control his inferiority feelings finds himself a failure in this critical period of his own life, he is likely to develop a reaction of inadequacy

There have been cases brought to our attention of young men who, because of these inferiority feelings, have not been able to go back and hunt for a job until such time as they are given special advice

These cases are infrequent, and the fact that such a major reaction occurs suggests

that perhaps they are the kind of cases best kept out of the Armed Forces

The fact remains, however, that the civilian population is going to be full of rejected young men—left to do various tasks for the Army, for the Government, and for the administration of the nonmilitary population—who are none too stable and upon whom are superimposed these new feelings of inadequacy and inferiority

Treatment

The physician in dealing with these problems should, first of all, make some effort to provide for correction, then the Government should make some provision so that when these difficulties are corrected the boy can be inducted in the Service. The draft physician should urge him to try a second time if it is possible. Those who cannot be corrected within a reasonable time should be sent to their physicians who must be careful not to set up such reactions as to make these people either seriously maladjusted or hypochondriacs. It must not be forgotten that each case is a law unto itself

Our Army officials are handling the new Army in a most careful fashion, giving them warm cantonments, good food, recreation, and education to take care of our Army morale. While it is not entirely the job of the physician to care for in a tactful, intelligent way those who are behind the lines, their responsibility cannot be ignored

When we consider the amount of damage that these unstable individuals with feelings of insecurity and inferiority could cause if they were led in the wrong direction, we must admit that it offers rather fearful problems. These are the people who—feeling the rejection by their father, the United States' Government, and in turn rejecting the father—become antisocial persons

The implications of historical studies are that if one were to analyze the type of people who are most apt to become traitors, *saboteurs*, and spies, one would find a large number of unstable persons who could not be accepted into the Army. First of all, they must compensate for their feelings of inferiority by getting a job that gives them status, even if this status exists only in their own mind. The fact that they are doing something important overshadows the fact that they are damaging their own country to which they should be loyal. Their discontent is easily turned to account by professional agitators and, as pointed out above, they feel rejected by their

and was charged with driving while drunk. I saw him several days later and he was still depressed. He wondered what would become of him. He felt that no girls would be interested in him because he was not qualified to compete physically with those boys who had gone into the Service.

Fortunately, in his case, therapy was possible. We pointed out to him that, although he could not join the Navy because of his eyesight, his vision was not so bad that he could not get into the Army. He volunteered for the Army, was accepted, and immediately made a good adjustment.

Another case was that of an elderly man who was especially trained in engineering. Although this man's salary was twice that which he would be able to get if he were accepted in the Engineering Corps of the Army, he made arrangements for joining that branch as a Reserve Officer on active duty. Despite the fact that he had never been in the Army, he was told that he could be accepted and that he would be given the rank of Major because of his special skill and experience. The physical examination revealed that his eyesight did not meet Army standards and that there was a dubiously significant cardiac murmur, which he claims he had had since childhood and never had had any decompensation or inability to take part in active physical work. He was not accepted for the Army and, at the time I saw him, he was talking about suicide. I had known him for some time and knew that this suicidal interest was a mere passing phase, but it was obvious that the disappointment had made sharp inroads into his mental adjustment. Some family friction then developed which required psychiatric advice for correction, although his wife and he had been very congenial before the present difficulty arose. He required several months' treatment but is now reconciled to the draft situation and to his wife.

Source of the Problem

In our contacts with a local induction board, to which the Assistant Director of the Court Clinic and I have been attached as psychiatrists, we have learned of a number of cases of individuals who were rejected because they were found to be unstable and mildly psychopathic. These patients were never psychotic, neurotic, or criminalistic, and I believe are unlikely to become so. They were eliminated because they seemed unlikely to be able to get along with other people in a camp situation. In order to have the best possible ma-

terial at the present time, the elimination of such psychopaths seems desirable.

In going over the records of deferred cases I find the following phenomena that should be of interest to physicians. First of all, there is a group who were rejected for minor physical ailments—slight murmurs, dental caries, mild visual defects. In most of the latter group the visual defect is so slight that we do not consider revoking their drivers' licenses in our driver's clinic. However, these defects admittedly might keep them from being considered the best type of human material for Army service. This is particularly true when one considers that there is a risk that they would have to be given a pension without having given anything of real value to their country. They are usually rejected by the local draft board physician without any use of tact or any advice.

It must not be forgotten that the rejected draftee offers a fertile field for medical work. For the first time in the lives of many of these individuals they are being given a physical examination and are being told that there is something that needs correction. If this is properly brought to their attention and if they are given the opportunity to correct their ailment with the possibility of reconsideration by the draft board, many of these boys will not have to face the mental-hygiene problem of rejection. The problems of rejection become more acute as the rejected boy sees a large number of his friends leaving and coming back with stories to tell about camp and recounting their adventures, travels, and experiences. We can use these conditions to send the rejected boy to his physician.

Draft Hypochondriasis

The physician must consider the possibility of too much stress being laid on the physical side. Hypochondriasis can arise from improper handling of a case. It does not take much longer for a physician to give a brief explanation of what the difficulty is and to suggest that treatment can be obtained for such a deficiency than to cast this potential patient out with no help. I might point out that many more of these boys than you probably believe possible are able to pay for proper physical care, and their families are anxious to see that they get it. Several physicians in Detroit have told me that boys who have been rejected have come to them voluntarily for proper treatment. In the case of poor eyesight, when the deficiency is not great, the vanity of the boy often keeps him from

THE CLINICAL FEATURES OF ENDOMETRIOSIS

LYLE A. SUTTON, M D , F A C S , Albany, New York

IT IS the purpose of this paper to present the clinical features of endometriosis based on the study of 656 consecutive cases of this condition treated on the Gynecological Service of the Albany Hospital during the past nine years, and it represents a recorded incidence of 13.2 per cent of all abdominal gynecologic operations performed on this service during the same period. It appears most frequently in or on the various organs or structures primarily, or accidentally, situated in the pelvis of women chiefly during their active menstrual life. Regardless of its location, this tissue frequently displays the same physiologic changes as normal uterine mucosa in its response to menstruation, pregnancy, and the menopause. In fact, it is this attempt upon the part of ectopic endometrial tissue to respond to normal physiologic stimuli which produces the pathologic conditions and symptoms of endometriosis.

For purposes of discussion the various forms of endometriosis (ectopic müllerian mucosa) may be classified as follows:

1 Direct endometriosis (adenomyoma, adenomyosis interna). These lesions result from the invasion of the uterine or tubal wall by its own lining mucosa.

2 Indirect endometriosis (adenomyosis externa). In the majority of these cases the lesions are peritoneal—that is, they are not continuous with the mucosa lining the uterus or tube and form the largest and clinically most important group.

3 Extraperitoneal endometriosis (non-operative). This group is comprised of lesions found in such locations as the groin, labia, vaginal vault, perineum, umbilicus, skeletal muscles, and lung. Some may result from direct extension of a peritoneal growth, while others are undoubtedly metastatic.

4 Postoperative endometriosis. These lesions may be either intra- or extraperitoneal. They may be produced by contamination of a wound with bits of viable uterine or tubal mucosa (transplantation) or may result from a direct outgrowth of the mucosa lining the uterus or tube follow-

ing trauma such as a salpingectomy, tubal sterilization, or a wound in the uterine wall deep enough to reach the endometrium.

Owing to the limitations of this paper groups three and four have not been given specific consideration in this study.

The incidence of peritoneal endometriosis in various clinics has shown marked discrepancies and is probably due to failure on the part of the operator to recognize or record the early lesions and the scars of the extremely old ones and failure of the pathologist to find microscopic confirmation in the tissues removed. A study of laboratory material will give fairly accurate statistics regarding the number of cases of direct endometriosis (adenomyosis interna) but will give an extremely low incidence of peritoneal lesions. Peritoneal endometriosis is frequently a clinical rather than a microscopic diagnosis. Only by repeated excisions of small implants, immediate fixation, and microscopic confirmation can one learn to recognize the small early and late lesions. This procedure has been followed by Sampson¹ and his associates over a period of years and we now feel that we can usually diagnose at operation both the early lesions and the old scars. These small early and late lesions are now only occasionally removed and, therefore, many cases showing only these types of lesions may not have endometriosis on the chart as a microscopic diagnosis. While we may occasionally misdiagnose such a lesion, it is more than compensated for by those not recognized or recorded.

There is also another type of lesion which sometimes lacks microscopic confirmation. This is the clinically typical "chocolate cyst," in which the pathologist fails to find endometrial tissue in its wall, particularly the large ones with pressure atrophy of their lining. These are usually called simple hemorrhagic cysts of the ovary. This diagnosis is often made on insufficient routine sections. Immediate fixation of the entire specimen and careful selection of blocks of tissue for microscopic study by the surgeon will reveal the true nature of these cysts in a much higher percentage of cases.

While we realize that ovarian hematomas of any size which are not adherent should be viewed with suspicion regardless of the

¹Read at the Annual Meeting of the Medical Society of the State of New York, New York City, May 9, 1940.

From the Gynecological and Pathological departments of the Albany Hospital and Medical School.

parent-substitute—that is, the Government—and, in the same way that the neurotic rejects his hated father, they reject their hated father-substitute

It is well enough to say that the Army is not an infirmary for the treatment of neurotics and psychopaths and that the Army, therefore, should not accept these neurotics—that, of course, is a truism. Yet, it is my belief that a great deal of thought should be given by the authorities to the unstable psychopathic person who cannot get into the Armed Forces to see whether he cannot be accepted for some special branch designed to keep such a potentially dangerous person out of a civilian situation where he might cause pernicious discontent or carry out dangerous acts, or whether, perhaps, there could not be some organization to aid in their placement in industry or elsewhere where they can feel they are acceptable in the preparedness program to such an extent that they will reject any suggestions that could make them dangerous

Conclusions

I have dealt here with only one phase of one of the problems that must concern us as physicians in dealing with the civilian population, as well as problems brought to us by the military. It is my feeling that the important thing now is to secure leadership to do this work, and we, as physicians, can do our part in setting up an excellent mental-hygiene program.

One idea that seems practical comes from the persistent effort of the American Medical Association to set up a centralized agency in the Government to deal with problems of medicine. The recent formation of the Federal Security Agency has been a step in that direction, but, in view of the fact that we have heard so little about how physicians can contribute to civilian adjustment during an emergency, the creation of some highly co-ordinated agency to deal with these problems seems definitely to be indicated.

ENCOURAGEMENT IN THE CANCER FIGHT

Much encouragement for cancer fighters appears in the record of the past few years, says Jane Stafford, Science Service Medical Writer, in the *Quarterly Review* of the New York City Cancer Committee. A decade or so ago reports from the cancer field consisted almost exclusively of the mournful record of the rising toll of cancer deaths and of warnings to doctors and the laity alike to watch for early symptoms and to start treatment promptly. The increase in cancer deaths has, unfortunately, not yet been checked, and the oft-repeated warnings on the imperative need for early diagnosis and treatment must still be heeded.

Today, however, reports from the cancer field show constantly increasing numbers of five-year cures, constantly increasing numbers of clinic and other facilities for treating cancer, constantly increasing knowledge about the very fundamentals of cancer, constantly increasing improvements in skills and methods for diagnosing and treating cancer.

More than 36,000 five-year cures of cancer are now recorded in the archives of the American College of Surgeons in Chicago. Officers of the College believe this represents the minimum figure. Cures of cancer, especially of the skin and breast, it is explained, are now no longer such a rare experience that physicians consider them significant for reporting. The five-year cures that are reported now are far more likely to include less accessible, less easily cured cancers, which seems to make the record more encouraging.

Cancer clinics, approved by the College of Surgeons, have grown steadily in numbers. When the list of such clinics was first announced in 1932, there were 100. Six months ago the College announced it had approved a total of 345 such clinics throughout the nation. Within

another six months, the number will have increased still more, judging by past experience.

A gain of nearly 30 per cent in the number of five-year cures of cancer of the breast during the past twenty years has recently been announced by Dr. Frank E. Adair, chairman of the College of Surgeons' Committee on Cancer. Cancer of the breast, as cancer fighters well know, is more easily diagnosed and treated than some other forms of cancer because of its greater accessibility. Progress is being made, however, in treatment and cure of cancer in other parts of the body.

Surgical operations for cancer of the lower alimentary canal cure more than one-half the patients, under certain circumstances, and prospects for improvement in surgery on this part of the body for the relief of cancer and other conditions are bright, Dr. Fred W. Rankin, of Lexington, Kentucky, declared at the last meeting of the American College of Surgeons. In cases of cancer of the lowest segment of the alimentary canal, the average of reports of cures from clinics here and abroad shows 58 per cent of the patients alive and well at the end of five years, including patients with and without glandular involvement, Dr. Rankin stated. When the cancer is slightly higher in the lower gastrointestinal tract the percentage of surgical cures ranges from 61 in patients without glandular involvement to 30 in patients with glandular involvement.

Surgical removal of the cancer is the only method of treatment in these conditions which offers a favorable outcome, Dr. Rankin said. Even when the cancer is so far advanced or has spread so far to other organs that cure is hopeless, the surgeon can do much to prolong the patient's life and make it relatively pain-free and comfortable.

frequent than one would suspect and represented 14 per cent of the total number of cases

The clinical features of direct endometriosis are quite characteristic and in marked contrast to those of the more common peritoneal lesions, except in its association with myomas (45.6 per cent). Peritoneal endometriosis is often an accidental finding, but direct endometriosis of any marked degree almost invariably produces symptoms that necessitate surgical intervention

Bleeding is by far the most common symptom of direct endometriosis. It usually starts as a menorrhagia, sometimes metorrhagia, and either may be gradually superseded by a continuous flow. The bleeding frequently reaches alarming proportions, resulting in severe degrees of secondary anemia which may necessitate transfusions prior to any operative procedure. Whether the bleeding comes directly from the tumor or is produced by some alteration in the uterine circulation is not definitely known. It is not common, however, to find any marked evidence of bleeding or accumulations of blood in the ectopic endometrial cavities of the tumor in the freshly cut specimen. Dysmenorrhea is not a constant symptom and may be due to the fact that direct endometriosis does not regularly participate in menstruation. Pain, when present, may be due to engorgement of the tumor with blood or mechanical interference with the muscular contractions of the uterus

The palpatory findings in direct endometriosis are not characteristic. The enlargement of the uterus, if any, may be regular and closely simulate a myofibrosis, submucous myoma, or hyperplasia of the endometrium. If the enlargement is irregular, it may be due solely to the endometriosis or to its frequent association with myomas

The diagnosis should be suspected in any woman over 35 years of age who has had several children and develops profuse uterine bleeding, particularly in the absence of any other demonstrable pelvic pathology. Curettage never cures and ordinarily fails to make the diagnosis, since only the endometrium overlying the tumor is usually recovered. This condition does not respond well to radiation and hysterectomy is the procedure of choice

The distribution of peritoneal endometriosis is such that it suggests soiling of the peritoneum by material escaping from the fimbriated extremities of the tubes as pointed out by Sampson.¹ These situations are the cul-de-

sac and the under and lateral surfaces of the ovaries. In this series of 491 cases of peritoneal endometriosis the cul-de-sac was involved in 427 and one or both ovaries in 288. We believe that bits of endometrium set free at the time of menstruation or by other mechanical means at other times are frequently viable and when transmitted to other locations by the veins, lymphatics, or through the fallopian tubes can become implanted and grow in ectopic locations. The most frequent sources we believe are a reflux of menstrual blood through the tubes and perhaps epithelium from the lining mucosa of the tubes, particularly the fimbria. Once implanted, this tissue goes through the same cycle as its parent mucosa, is microscopically identical, and responds to the same stimuli

Aberrant endometrial tissue situated in or on the various pelvic organs and structures produces typical pathologic lesions that can be readily recognized in gross by the operating surgeon. The appearance of the early lesions and the peritoneal reaction to the growth produce a peculiar combination of color and puckered scarring not seen in any other disease. The nearest similarity is seen in carcinomatous implants on the peritoneum, but these lack the typical coloring. The color of the small endometrial implant varies with the degree of its development and the phase of the menstrual cycle as it passes through the raspberry red to the more typical blueberry color and finally fades into a white puckered scar as all activity ceases. The peritoneum resists this subserosal growth and invasion of this tissue, and the resulting reaction gives rise to the "shotty" induration often felt in the vaginal vault on vaginal examination. The lesions on the general peritoneal surfaces rarely attain any great size, although they may be widely scattered. It is in or on the ovary that they attain their greatest size and virulence, and this organ is nearly always involved in the more extensive cases. The ovary is especially susceptible to the growth of endometrial tissue and the ultimate production of the large hematomas (chocolate cysts) which first attracted the attention of clinicians

These cysts are prone to rupture, soil the peritoneal cavity, and further disseminate the disease. The contents of these cysts is apparently irritating and gives rise to the dense type of pelvic adhesions so characteristic of endometriosis. The rate of development of any endometriotic process is apparently quite variable. We have found quite

character of their contents, we feel that previous perforation and implantation lesions, particularly about this site, are sufficient evidence to classify these cysts as truly endometrial. Therefore, they have been included in this study. The number of cases here reported probably does not indicate the true incidence of this disease because of the failure to record early unremoved lesions and to remove tissue for microscopic diagnosis from suspicious areas at the time of operation, as the tiny lesions are frequently overlooked in the pathology laboratory. Conversely, early direct endometriosis is sometimes found in the routine microscopic examination of uteri in which the disease was not suspected. In general, direct endometriosis of sufficient degree to be of clinical significance can be recognized in gross. We have encountered several cases of early direct endometriosis with slight but definite penetration of the myometrium by its mucosa with typical muscle reaction which were not recognized in the cut specimen at the time of operation. It is difficult to state when endometrial penetration beyond normal anatomic limits has occurred and requires classification as early direct endometriosis. These cases have been carefully reviewed, and only the unquestionable cases are included in this report.

Included in this study is also a group of 28 women who had both peritoneal and direct endometriosis. This combination was not encountered in those under 31 years of age. Direct endometriosis of sufficient degree to be recognized in the gross specimen was found in association with peritoneal endometriosis on only 3 occasions, and in only 2 cases were both conditions well advanced. Incidentally, both of these patients were single and over 41 years of age. These statistics bear out the impression that we have held for a long time—that the two forms are rarely associated in the same patient. In the majority of instances the peritoneal endometriosis was an accidental finding associated with adenomyomas of the uterus and the direct endometriosis, a similar finding in the routine microscopic examination of tissue as previously mentioned.

The age incidence of peritoneal endometriosis in this study corresponds closely to that previously stated by Sampson and others. It is rare under 20 years of age or over 60. Our youngest patient was 14 years old and the oldest 61, while the average age of all cases was 35 years. In the young girl it resulted from an imperforate hymen with tremendous hematocolpos, hematometra, and bilateral hemato-

salpinx with extensive peritoneal implants resulting from the backflow of menstrual blood. In our oldest patient it was an accidental finding, consisting of old scars in a patient operated upon for carcinoma of the corpus uteri. The age incidence of direct endometriosis, often called adenomyosis interna, is considerably higher. Nearly all of the cases of peritoneal endometriosis were encountered between the ages of 20 and 50, which closely corresponds to the period of menstrual activity. The greatest number occurred between the ages of 31 and 40 regardless of the marital status. It would appear that single women between the ages of 21 and 30 show a greater relative incidence than the same age group of married women. Single women and others over 40 years who have never been pregnant also show a greater tendency to develop the disease, possibly because of the increased incidence of myomas in this group. We encountered only 3 cases of peritoneal endometriosis in colored women, in spite of the high incidence of myomas in this race. This may be explained in part by the low percentage of colored women in our locality.

Direct endometriosis occurs much more frequently in the fourth and fifth decades and almost always in women who have had children, in fact, repeated pregnancies seem to predispose to its development. This is in direct contrast to peritoneal endometriosis in which the percentage of relative and absolute sterility is high.

It would seem that certain sites have a predilection for the implantation or development of peritoneal endometriosis. The posterior cul-de-sac and particularly the uterosacral ligaments are by far the commonest sites. This is especially true of the small early isolated lesions of the type seen so frequently associated with other pelvic tumors and retroflexion of the uterus. The ovary is the next most likely site. In this series the left ovary (87 cases) was involved somewhat more frequently than the right (75 cases) and both together (126 cases) much more often than either alone. The cul-de-sac without ovarian involvement occurred in 168 cases, while ovarian lesions alone were present in only 44. This is as one might expect considering the frequent association of retroflexion of the uterus with peritoneal endometriosis and the ease with which fluids injected into a retroflexed uterus, even without pressure, reach the cul-de-sac, as demonstrated by Watkins.² Direct endometriosis of the uterus is also much more

from puberty are included in the group. The average age at onset, interval, and duration of the menses showed no greater variations than any group selected at random from our office files and, thereby, failed to show any evidence of early endocrine dyscrasia.

Pelvic pain, chiefly in the form of an increasing or acquired dysmenorrhea, is the outstanding symptom of peritoneal endometriosis. In this study 79 per cent of all the patients complained of dysmenorrhea. Of this number, 57 per cent gave it as a prominent symptom and 22 per cent as mild, while in the remaining 21 per cent it was entirely absent. Many patients cannot differentiate between abdominal pain and dysmenorrhea, and it is quite likely that the latter is even more common than these figures indicate. In some, it was present from puberty, in others, it developed relatively late in their menstrual life, but in the majority it was definitely acquired and was increasing in severity. Many of the patients have difficulty in accurately localizing their pain. It is generally referred to the back, sacrum, rectum, or lower abdomen and is usually more severe on one side than the other. Incidentally, the apparent localization of pain does not necessarily indicate the site of the maximum lesions. It may vary from mild discomfort to incapacitating pain and occur before, during, and sometimes after the menstrual flow. It is also often aggravated by walking, sitting, or riding during the period. In severe cases the tenderness and pain may persist for several days and closely simulate an attack of pelvic inflammatory disease, except for the absence of fever.

Severe dysmenorrhea may be associated with nausea, vomiting, and epigastric distress. The pain is probably due to the relatively sudden distention of the lesions with menstrual blood, stretching of the surrounding tissues, chiefly the peritoneum, and, at times, rupture of an endometrial hematoma wherever present, especially in the ovary, and release of irritating material into the peritoneal cavity. The contents of these cysts may contain viable fragments of tissue which may implant and further disseminate the disease or, by irritation of the peritoneum, provoke further adhesions. Periodic repetition of the above process gradually increases the scope and intensity of the pain. On the other hand, the pain does not necessarily have any direct relation to the amount of the disease. We have seen incapacitating pain in patients with relatively few peritoneal implantations and

complete absence in extensive cases, particularly those with chiefly ovarian lesions. This was found to be true both in cases complicated by myomas, retroflexion, and other pelvic disease, as well as those having only an extensive peritoneal endometriosis. While pelvic pain and dysmenorrhea are not pathognomonic of endometriosis, they are quite significant if the dysmenorrhea is acquired and if the pelvic pain, chiefly in the rectum and occasionally in the bladder, is confined solely to a menstrual period.

We believe that peritoneal endometriosis is not a cause of uterine bleeding. While many of our patients complained of irregular uterine bleeding, an analysis of the statistics have shown that in almost every case the bleeding was due to some other concomitant pelvic pathology, chiefly myomas or a hyperplastic endometrium.

Sterility is a common and important symptom of peritoneal endometriosis. The figures on sterility can be made to show wide variations depending on how the cases are selected and what criteria are used for their grouping. When all cases were included regardless of the age of the patient, duration of marriage, and extent of the disease, we found 38.5 per cent relatively sterile, 38.5 per cent absolutely sterile, and 23 per cent fertile. The average number of children for the whole group was 1.2. We arbitrarily considered any woman who had a child 5 years of age or younger as fertile, and, conversely, any young woman who had not had a child in five years as relatively sterile. The relatively sterile women had 1.48 children, while those considered fertile had 3.2. When we reviewed 268 cases with sufficient endometriosis to be of clinical importance as judged by their chief complaints and pelvic findings, we found 87.3 per cent absolutely or relatively sterile. Most of those classified as relatively sterile had had only 1 or 2 children, and these usually were over 10 years of age. It is obvious that statistics on sterility are not significant unless the basis on which they were compiled is stated. In contrast to this high incidence of sterility in peritoneal endometriosis, we studied 92 cases of direct endometriosis and found that 94.6 per cent of these patients had had children. The remaining 5.4 per cent were absolutely sterile. It is difficult to give figures on the relative sterility of direct endometriosis, since this disease occurs in older women and the interval since bearing their last child is thereby increased. The relative sterility in this group may also be due to the frequent

extensive lesions at subsequent operations on women known to have had no peritoneal endometriosis as late as two years preceding this operation. We have recently had the opportunity to perform a second operation upon a patient 38 years old who had peritoneal endometriosis ten years before, and we found surprisingly little change in its appearance. Neither does peritoneal endometriosis always disappear immediately following the menopause, for we have found fairly viable appearing lesions in women operated upon for some other condition at various intervals of time following the cessation of the menses. We have also seen old scars in women still menstruating regularly. It would seem that some aberrant endometrial lesions cease to menstruate prematurely, probably owing to the destruction of its functioning mucosa. It is highly probable that the rate of growth and its continuation in functioning implants are dependent upon some hormonal influence.

In a review of a large series of cases, it at once becomes apparent that the greater majority of patients who have endometriosis come seeking relief from symptoms that are not produced primarily or at all by this disease. In this series only 93 out of 491 patients had peritoneal endometriosis as an uncomplicated disease. The common association of endometriosis with uterine myomas is well known, and some change in the ovarian secretions has long been suspected in the pathogenesis of both, although its true nature has never been demonstrated. It does appear that they are in some way associated perhaps on a mechanical basis, as myomas were present in 200 of these 491 cases. Retroflexion of the uterus also seems to be a predisposing factor and was associated with 143 cases in the same series. Large simple ovarian cysts were present in 32 cases. Hyperplasia of the endometrium was also present in a large number of cases, and the significance of this finding is not definitely known and may indicate some excessive hormonal activity. Experimentally, fragments of endometrium seem to implant and grow more readily in animals treated with estrogenic substances. We have found peritoneal endometriosis in association with nearly every pelvic disease prevalent in the same age group. This common association with other pelvic pathology makes the preoperative recognition of endometriosis difficult. Apparently, many women acquire small endometrial implants on the various pelvic structures which give few or no symp-

toms and are found accidentally during operations later in life for injuries of childbirth, tumors, or other pelvic pathology.

Endometriosis does not prevent the occurrence of pelvic inflammatory disease, but the association of the two is not common except in tubal stumps. As a matter of fact, patent fallopian tubes seem to be one of the chief prerequisites for the acquisition of peritoneal endometriosis. In this study the tubes were apparently patent in over 95 per cent of the cases. There were 16 cases of chronic pelvic inflammatory disease, 13 cases of hematosalpinx, and 1 case of tuberculous salpingitis, and in all of these, as judged by the appearance of the lesions, the peritoneal endometriosis could well have been acquired prior to the closure of the tubes. Salpingitis superimposed on peritoneal endometriosis gives rise to a confusing clinical picture both before and at operation.

The symptoms of peritoneal endometriosis are due to the implantation, growth, invasion and, most important of all, the menstrual reaction of ectopic millerian tissue wherever found. The frequent wide distribution of the lesions is such that it is impossible to enumerate all of the symptoms and signs that may accrue to this disease. In the main, the symptoms bear a direct relationship to the menstrual function and will continue as long as this phenomenon is maintained.

The onset may occur at any age during menstrual activity and is usually insidious but progressive over a period of years before these patients seek relief. In certain instances, however, the onset may be acute. We have also been impressed by the rather large number who have apparently developed the disease shortly following childbirth. In this series there are also a number of patients who have been subjected to curettage or other pelvic operation a few months to three or four years prior to the development of symptoms. While it is theoretically possible that a curettage or other pelvic manipulation might initiate the process, we do not have enough information to state that it was ever more than circumstantial evidence in any of the cases of endometriosis which we have studied. The average duration of symptoms prior to operative interference in this series was three to four years but varied from a few hours to twenty years. The average age at the onset of symptoms was 28 years or about fifteen years after the average age at onset of menstruation. This figure is undoubtedly too low, as all patients who complained of pain

uterine displacements should accompany any conservative operation to afford better drainage for the uterine cavity. In fact, any operation that preserves ovarian function should be considered conservative and, especially so, if the menstrual function and possibility of conception are also conserved. Hysterectomy with removal of one ovary and perhaps a portion of the other should be considered extensive rather than radical surgery. From the standpoint of peritoneal endometriosis, the term radical surgery should be reserved for those cases that have had complete removal of all ovarian tissue.

In this review, 84 per cent of the patients under 41 years of age had conservation of some or all ovarian tissue. In this age group only those cases with extensive involvement of both ovaries or the rectosigmoid and rectovaginal space were subjected to castration. After 41 years of age the necessity for ovarian conservation decreases and the incidence of other pelvic pathology increases so that the number of radical operations rises rapidly. Failure to castrate in the presence of extensive endometriosis of the bowel is a hazardous form of conservative surgery.

Unfortunately, the majority of the cases of peritoneal endometriosis comprise a large borderline group that requires considerable surgical judgment since no one can state where all chance of conservative surgery ends and radical surgery becomes imperative. If the patient is young and anxious to have a child, one is justified in doing a conservative operation that would be contraindicated in a woman over 40 or, perhaps, in a similar young patient who has had children and now has incapacitating dysmenorrhea. The extent and severity of the disease are also important. If the bowel is not involved, one is more justified in being conservative regardless of the extent of the lesions, especially if the patient is seeking relief from sterility or is anxious to preserve the menstrual function. The probability of a pregnancy is greater following conservative operations on peritoneal endometriosis than from the same types of operations on pelvic inflammatory disease. In our experience the necessity for secondary operations or radiation castration on any of this questionable group has been rare, which is another reason to be conservative. If a patient in the borderline group already has several children and is 40 years of age or older, it is probably better judgment to prevent further spread of the disease. Fortunately, the surgeon is often aided in

his decision by the presence of some other pelvic pathology. Uterine myomas were found in approximately 50 per cent of all our patients over 30 years of age and were frequently of sufficient size or in such a location as to make hysterectomy justifiable. As a matter of fact, our apparently high incidence of extensive and radical surgery is largely due to the accidental finding of small areas of endometriosis in patients operated upon primarily for some other condition, chiefly myomas, ovarian cysts, and injuries of childbirth. An analysis of our 491 cases of peritoneal endometriosis indicates that 153 had enough endometriosis to justify extensive or radical operation for this condition alone, although it was frequently associated with other conditions.

The development and continued growth of endometriosis depends on the presence of functioning ovarian tissue. Therefore, the successful treatment of this condition depends on careful individualization of each case and the selection of those in which it is reasonably safe and practical to conserve ovarian function or necessary to destroy it. Fortunately, a recurrence or failure to control the symptoms is not so serious in peritoneal endometriosis as in many other types of pelvic pathology, since x-ray or radium castration can always be employed later if necessary. We believe that radiation castration should not be employed prior to laparotomy because of the high incidence of errors in diagnosis and that it should be reserved for those patients who develop recurrences when small amounts of ovarian tissue are unavoidably left behind or when there is a failure of regression in unremoved endometriosis after presumably radical surgery. There were 2 patients in this series who developed a recurrence following estrogenic therapy for relief of menopausal symptoms, and they were successfully treated with deep x-ray.

Extensive peritoneal endometriosis may present technical difficulties because of its possible wide distribution, dense adhesions, and involvement of contiguous structures, chiefly the rectosigmoid and, occasionally, compression of the ureters. In order to avoid injuries it may sometimes be necessary to leave considerable amounts of endometriosis attached to these structures during otherwise successful radical operations. However, in our experience retrogression has been the rule and the need for subsequent radiation has been rare.

The postoperative morbidity in peritoneal

association with myomas The average number of children per marriage in this group was 3.2

Although dyspareunia is usually considered a possible symptom of extensive peritoneal endometriosis, particularly with involvement of the cul-de-sac, the statistics are unreliable. This is especially true in attempting to gather these figures from hospital charts, as interns do not routinely obtain this information. The charts will, therefore, show a marked decrease over office records.

Rectal and bladder discomfort are such common symptoms in any gynecologic chart because of the frequency of hemorrhoids, cystitis, and injuries of childbirth that they are not considered of significance unless definitely associated only with a menstrual period. Hematuria at that time may mean actual bladder involvement. Painful defecation without bleeding or discharge and present only with a menstrual period is almost pathognomonic of endometriosis in the cul-de-sac with involvement of the rectosigmoid. It is not uncommon to obtain a history of fainting or the assumption of unusual attitudes during defecation in some of these patients.

The physical signs of peritoneal endometriosis which can be detected on bimanual examination are not always characteristic. A typical "shotty" induration in the cul-de-sac is the most characteristic finding. The large adherent endometrial hematomas of the ovary can be readily palpated and are usually tender, particularly near the menses, but cannot at times be differentiated from inflammatory disease or other pelvic tumors, benign or malignant. The small lesions feel much like the adherent adnexa of inflammatory disease, while tiny lesions cannot be palpated at all. The common association with an adherent, retroflexed uterus and uterine myomas combine to make the diagnosis even more difficult.

The diagnosis is, therefore, made on a combination of the history and physical examination. A woman over 30 with acquired dysmenorrhea, sterility if married, negative inflammatory history, and, especially if associated with a retroflexed adherent uterus, an adherent ovary and "shotty" induration in the cul-de-sac probably has peritoneal endometriosis. If she has rectal and vesical pain associated only with menstruation, the diagnosis is even more certain. Our resident staff listed endometriosis among the possible diagnoses in 49 per cent of the 491 cases in this study.

The differential diagnosis of peritoneal endometriosis is extremely difficult because of the widespread distribution of the disease. Pelvic inflammatory disease, because of its same age incidence and similar palpatory findings, is the condition most frequently confused with endometriosis. Ovarian carcinomas, particularly with malignant implants in the cul-de-sac, may present identical palpatory findings. Rupture of an ovarian endometrial hematoma may simulate almost any acute abdominal condition. In this series there were 2 cases of acute rupture. One was mistaken for a ruptured duodenal ulcer and the other for an ectopic pregnancy. If the lesions are right-sided, they may be mistaken for appendicitis. If an ovarian endometrial hematoma becomes infected, it may simulate a tuboovarian abscess or other infected ovarian cyst.

Carcinoma of the rectosigmoid is the most important differential diagnosis, as many needless resections of the sigmoid have been performed because of failure to recognize endometriosis in this location. Absence of blood and mucus in the stool, normal appearing rectal mucosa over the site of the obstruction, and at operation the typical appearance of endometriosis along with other evidence of the disease in the various pelvic structures should make the diagnosis. Many extensive lesions of the sigmoid and rectovaginal septum were encountered in this review, but there were no intestinal resections or colostomies performed.

The surgical treatment of peritoneal endometriosis presents many perplexing problems since it occurs chiefly during the childbearing period, and we are often confronted with the necessity of preserving this function as well as relieving the symptoms. The decision on the type of operation to be performed will, therefore, be influenced by many factors such as the age of the patient, sterility, the amount of pain, extent of the disease, presence of other pelvic pathology, and in the final analysis by the desires of the patient. Every effort should be made to be conservative especially in women under 40 years of age, since the condition is not, and rarely ever becomes, malignant. Small areas of endometriosis on the pelvic peritoneum may be ignored, resected, or destroyed with a cautery. If located on or in the ovary, relatively large portions can be easily resected. Early lesions on the bowel are better left alone, for they grow slowly and rarely produce symptoms of obstruction and then only late in the disease. Dilatation of the cervix and correction of

and aggravated by menstruation. Many also had excessive or irregular menstruation. A few complained of backache, swelling or bleeding from the umbilicus, bleeding from a laparotomy scar, and dyspareunia or rectal tenesmus, according to the organ or area affected. In other words, there is no pathognomonic symptom of endometriosis and, furthermore, dysmenorrhea was not a particularly prominent complaint in our patients as it was in many of Dr. Sutton's and also of Dr. Counsellor's, who wrote on this subject from the Mayo Clinic a year or two ago.

I am going to complete my brief discourse by a few remarks on the important subject of treatment as I view it. The treatment of endometriosis should be surgical excision of the lesion and, since it is frequently a disease of comparatively young women in whom ovarian conservation is desirable, the question of how much to do becomes, many times, a most perplexing problem. In the older patients in whom ablation of the ovarian function does not matter so much, roentgenotherapy or radium irradiation may be employed in addition to radical surgery, but most writers report only 2 or 3 per cent of their cases treated by these methods. We have had no experience with radiotherapy for endometriosis at the Woman's Hospital, although we recognize with others that ovarian function is essential to the growth of ectopic endometrial tissue and that cessation of the former results in regression and extensive atrophy of the growths. To conservative operative work some surgeons have added presacral nerve resection as a prophylactic against pain in the event of recurrence of the trouble, but to most surgeons it seems of dubious practical value.

As to the question of conservative versus radical surgery in these cases, I am convinced on general principles that an effort should be made to save as much ovarian tissue as possible for women in the younger age groups. Small cysts and implants on the ovary and elsewhere on the pelvic peritoneum can be excised or destroyed

with the cautery, and malpositions of the uterus can be corrected after separation of the adhesions that anchored it in the cul-de-sac. By so doing, the menstrual and sometimes even the child-bearing function of the patient can be preserved for her, and she is saved the distressing symptoms that characterize an early artificial menopause. On the other hand, more extensive lesions, particularly those that involve both ovaries, can be remedied only by more radical procedures, and a supravaginal or total hysterectomy, combined with the removal of both appendages, gives the best results. With few exceptions, if any, the ablation of the ovaries will bring about a regression and atrophy of endometriosis in the rectovaginal septum and in other places where possible injury to the bowel might be involved in removing it.

In the Woman's Hospital group the ratio of conservative to radical operation was exactly five to four, and by radical is meant the complete removal of all ovarian tissue. Of the 75 patients who underwent conservative operation, 42 left the hospital with enough of the genital tract intact to make pregnancy a possibility, while 33 were rendered sterile by hysterectomy, the removal of both tubes, or various combinations of work.

The postoperative morbidity and the immediate mortality rate are slightly greater in these cases than in a random series of gynecologic laparotomies for other conditions, such as operation for fibromyomas, ovarian cysts, or retroversion. This is due, of course, to the wide blunt and sharp dissection of dense peritoneal adhesions often required, the spill of the tarry material from the old cysts, the longer time consumed, the greater tendency to hemorrhage and shock, the disruption of integrity of the serosal or muscular layers of the bowel, and general trauma that accompanies extensive manipulation. Three of our patients died while in the postoperative stage, slightly over 2 per cent, and all of them showed signs of peritonitis with marked distention and ileus.

HELL FIRE AND TYPHOID FEVER

Among the many interesting papers of reminiscences appearing in the medical journals is one by Dr. R. H. Garthright, of Vinton, Virginia, in the *Virginia Medical Monthly*. He recalls that as late as the fall of 1898 a young doctor read a paper before the state society on "Do Bacteria Cause Disease?" and "the scholarly men of advanced age did not believe it, and in loud language declared the ideas expressed by the young doctor could not be accepted as true!" "Think of it," exclaims Dr. Garthright, "and it happened late in the nineteenth century!"

Many people then used to plug their keyholes at night, he recalls, to keep out the night air, which was considered baleful. Some towns were advanced enough to put in sewage plants, and

the question came up in Vinton. "A meeting was called, at which a bond issue for \$50,000 for putting in a sewage system was discussed. All seemed to favor the project. At the second meeting several weeks later, several citizens opposed the project. Speeches were made for and against the measure. I saw in the faces of many of the assembly, a determination to turn the matter down, and, before putting the vote, urged them to act in its favor. 'If you do not, this dangerous disease will stay with us, and kill some of you, and, knowing you as well as I do, I think I am telling the truth when I say, you will go to Hell!'" The bond issue was voted, the sewage system built, and typhoid fever disappeared.

endometriosis is somewhat greater than in other more clean-cut pelvic operations, but the mortality rate is extremely low, probably owing to the age and generally good condition of these patients. There were no deaths in our series of 491 abdominal operations for peritoneal endometriosis.

Summary

Endometriosis can be divided into four general groups as follows:

- 1 Direct endometriosis (adenomyosis interna)
- 2 Indirect or peritoneal endometriosis (adenomyosis externa)
- 3 Nonoperative extraperitoneal endometriosis
- 4 Postoperative endometriosis

Endometriosis is a common pelvic condition in women between 25 and 50 years of age and may be encountered before 20 years or after 60. Peritoneal endometriosis is frequently an accidental finding with few or no symptoms, but in advanced cases it may produce marked pelvic pathology and become an incapacitating disease.

No other nonmalignant condition presents such a possible wide distribution of lesions or more bizarre clinical features than peritoneal endometriosis.

A statistical study of 656 cases of endometriosis is herewith presented. The discussion is centered on the clinical features of 491 cases of peritoneal endometriosis and 92 cases of direct endometriosis, including their points of contrast.

The outstanding symptoms of peritoneal endometriosis are dysmenorrhea, pelvic pain, and sterility, while the chief symptoms of direct endometriosis are uterine bleeding, occasionally dysmenorrhea.

The treatment of peritoneal endometriosis should be conservative whenever possible, and particularly in women under 40 years of age. Any operation that leaves ovarian tissue *in situ* is considered conservative. Direct endometriosis of sufficient degree to produce bleeding cannot be controlled by conservative measures, and hysterectomy is the procedure of choice.

425 State Street

References

- 1 Sampson J A Arch Surg 3 245 (1921)
- 2 Watkins R E West J Surg 46 460 (1938)

Discussion

Dr Ralph A Hurd, New York City—It gives me great pleasure to discuss Dr Sutton's inter-

esting and instructive observations on the subject of endometriosis, a lesion that has been of unusual interest to me ever since the masterful articles of Dr Sampson appeared in the nineteen twenties. I think it is particularly appropriate that Dr Sutton is doing his work in Albany, which ranks as the outstanding seat of investigation of this condition in this country.

I like the clear and simple way in which Dr Sutton has grouped endometriosis into four general varieties rather than naming the various organs in which the condition has been found. Such organs are myriad. I am in agreement with him when he states that no other nonmalignant condition presents such a wide distribution of lesions and such diversified clinical features as does endometriosis. It is also gratifying to find that the essayist strives to treat peritoneal endometriosis in a conservative way, particularly in women in the younger age groups. It may be interesting to contrast Dr Sutton's observations and conclusions on this ever interesting topic with my own that are the result of a survey made at the Woman's Hospital in New York City.

Our 361 cases are dwarfed in number by those of Dr Sutton which total 656, but I feel that we have learned a good deal from ours, nevertheless. In going over my statistics, I felt that our cases of adenomyosis interna should not be properly included in a clinical study of endometriosis, as this condition was frequently discovered only in the course of routine pathologic examination in cases where a hysterectomy had been performed for some other reason. My critical analysis, therefore, is limited to 135 cases, but in every one of these the endometriosis was the sole or a prominent contributory cause of the symptoms from which the patient sought relief.

In the course of this brief discussion I shall not go into the history of the development of this subject or cite the various theories of etiology of endometriosis, except to say that the theory of Sampson has received the widest acceptance of all and that I personally am happy to subscribe to it. The pathology of endometriosis has been well described again and again, and nothing need be said in that connection. As to age incidence, my findings are practically in agreement with those of Dr Sutton, and I also discovered the possibly significant fact that about 40 per cent of our patients had been operated upon previously, most of them having had laparotomy for one condition or another, including cesarean section, and a few having undergone vaginal plastic work or curettage. This bears out Dr Sampson's published belief that there is danger of initiating endometriosis by manipulation of the pelvic viscera at operation.

So far as symptoms are concerned, our patients complained of those for which most women with intrapelvic lesions consult a physician. One was abdominal pain, either constant or irregular

lated either to the pathogenetic mechanism of *predisposition*, which concerns the causation and distinction of the basic character of an anomaly, or to the pathoplastic mechanism of *preformation*, which concerns the preparation of the individual organism for the production of a particular psychosis. The third mechanism in the organization of any mental disorder is that of *provocation*, which refers exclusively to its instigation, activation, and actual manifestation.

Although there is no uniform biologic law governing the dynamics and integration of these coordinate morbidic elements in the individual case, it is significant that the principal effect of specific hereditary characters centers around the primary pathogenetic determination of an anomaly. Every genetic factor becomes subject to the individual environment, which exercises its provoking influence by mobilizing and modifying the phenotypical expressions of the given character. These environmental conditions naturally include the manifold biophysiologic processes that take place in the organism itself and prove to be essential to its particular life development. Therefore, it should not be concluded from the absence of a genetic anomaly in the immediate ancestors of a single patient that in such a case the disease is not hereditary, for it is not the anomaly itself which is hereditarily transmitted but only the predisposition to this anomaly—that is, the ability to develop it when the necessary peristatic conditions for the particular anomaly are present.

Biologic Definition of Normality and Adaptation

To understand the heredoconstitutional mechanism of preformation, which is especially effective in the pathoplastic differentiation of mental disorders, we must bear in mind that from the biologic point of view no clear-cut distinction exists between disease and health or between normality and abnormality. Perfect health is a condition of full biologic adaptation, while disease constitutes that state of an organism which is at the opposite extreme in its adaptive capacity. It is obvious, therefore, that normality, likewise, is merely a concept of clinical definition classifying the individual according to his capacity for self-preservation.² The normal type is best defined according to the integrity of its vital efficiency if the standards of normality are not confused with those of medic-

It is this innate faculty of *adaptation* which primarily determines the limits and qualities of a human individual with respect to his particular reactions to both predispositional and external morbid factors. The variations in these reactive abilities to protect the organism against pathologic influences depend on the degree of the individually developed physical and mental resistances that find their expression in the corresponding phenomena of constitution and character. What the character is in the province of mental development, the constitution is in the physical field. Together they form what finally defines the individual susceptibility or adaptability to morbidic elements.

These basic concepts of medical genetics explain why serious *morbid* factors, such as that for schizophrenia, although they are transmitted in accordance with the same laws as normal ones, are usually monomeric, while most of the *normal* human qualities are based on several or many hereditary predispositions. If a particular genetic factor brings about so marked a deviation from the average type of normality that the person affected by this monomeric trait becomes plainly distinguishable from other individuals, the deviation will generally involve a definite impairment of the capacity for adaptation and self-preservation, thus leading to a morbid state. On the other hand, when single hereditary factors are not potent enough to produce a distinctive condition of mental abnormality but need the cooperation of other factors for the development of a well-marked deviation, then they will usually remain without pathologic significance. They will cause mere differences in degree which are within the limits of what is ordinarily spoken of as normal.

Special Genetic Pathology of Mental Disorders

Reasonable modifications are necessary, of course, to render these general genetic principles applicable to the various types of common mental disorders, which neither exhibit any gross anatomic lesions or defects of the brain nor affect the functions of the peripheral parts of the nervous system—that is, the simple forms of psychopathy and mental deficiency, paranoid reactions, schizophrenia, manic-depressive psychosis, and senile dementia. It is to be expected that the quality, source, and intensity of the different elements, that share in the formation of such an anomaly, may vary in accordance with the actual clinical nature of the individual process. It

THE OPERATION OF GENETIC FACTORS IN THE PATHO-GENESIS OF MENTAL DISORDERS

FRANZ J. KALLMANN, M D, New York City

IN SPITE of numerous uncertainties that still exist about the intrinsic morphologic processes of heredity, it should now be clear to the medical profession that many important problems of pathogenesis will remain unsolved, or insufficiently solved, without the collaboration of genetics and the development of what may best be called a special science of *medical genetics*. There is no use in presuming that man might be an emancipated exception to any of the fundamental biologic laws. In the case of heredity it has been possible to demonstrate by a great number of clinical and experimental observations that in controlling and directing the normal or abnormal development of human beings innate forces are no less effective than the influences acting upon the organism from without.

The futility of any effort to understand the origin of complex morbid conditions without distinguishing between primary pathogenetic determinants and modifying pathoplastic agents has become particularly obvious in the field of mental disease. Medical knowledge has gained as little from the old controversy about the significance of either heredity or environment in the production of mental disorders as it has gained from any other attempt to classify intricate psychiatric problems under artificially dichotomizing or purely speculative terms. The biologic analysis of the basic mechanisms that operate in the pathogenesis of the great variety of psychotic processes and psychoneurotic reactions does not require, certainly, their pseudosystematic classification under such dichotomous headings as psychogenic and somatogenic, endogenous and exogenous, functional and organic or genetic and peristatic. Still less does it permit the relating of all deviations in mental efficiency and behavior to only one of the various functional systems that cooperate in the determination of the actions and reactions of a human organism.

The Inseparability of Heredity and Environment

The biased and oblique dispute about the

preponderance of genetic or environmental factors in the origin of mental disease can be traced to those remote times when genetics was in the same undeveloped condition as many other branches of medical science. It had little justification even in that period when heredity was interpreted as merely the transmission of simple physical or mental attributes from parents to their children.

In the meantime it has been observed that there are only a few inheritable mental characters that follow the direct mode of mendelian inheritance or are absolutely independent and insuppressible in their phenotypical expressivity. It has been found to be the rule that the relations between the various inherited predispositions to mental anomalies and the individually manifested attributes are of a much more complex nature. Even if a certain type of mental disorder is proved to be inheritable, it does not follow that heredity must be instrumental in every case exhibiting the symptomatology of this disorder or that it is always the only factor operating in its pathologic development.

General Genetic Principles

It is one of the fundamental genetic principles that any anomaly that generally results from the operation of a certain gene or a combination of genes may depend, in its phenotypical expression, upon the presence or absence of other genetic or peristatic elements and may also be able to originate from a particular arrangement of purely external factors. The limited number of possible morphologic response patterns of the human brain permits similar psychopathologic symptoms to arise from a multiplicity of biophysiologic causes, although it is equally true that practically identical causes are capable of producing a diversity of symptoms in various types of individuals whenever these persons differ in their genotypical structure, constitutional resistance, or mental responsiveness.

It is another law of modern human genetics that the genetic factors involved in the pathogenesis of mental disorders may be specific or unspecific in their phenotypical effects and are even able to act upon different components in the tridimensional structure¹ of a psychosis. These components may be re-

¹Read at the Annual Meeting of the Medical Society of the State of New York, New York City May 8 1940.

From the Department of Psychiatry, New York State Psychiatric Institute and Hospital.

lated either to the pathogenetic mechanism of *predisposition*, which concerns the causation and distinction of the basic character of an anomaly, or to the pathoplastic mechanism of *preformation*, which concerns the preparation of the individual organism for the production of a particular psychosis. The third mechanism in the organization of any mental disorder is that of *provocation*, which refers exclusively to its instigation, activation, and actual manifestation.

Although there is no uniform biologic law governing the dynamics and integration of these coordinate morbidic elements in the individual case, it is significant that the principal effect of specific hereditary characters centers around the primary pathogenetic determination of an anomaly. Every genetic factor becomes subject to the individual environment, which exercises its provoking influence by mobilizing and modifying the phenotypical expressions of the given character. These environmental conditions naturally include the manifold biophysiologic processes that take place in the organism itself and prove to be essential to its particular life development. Therefore, it should not be concluded from the absence of a genetic anomaly in the immediate ancestors of a single patient that in such a case the disease is not hereditary, for it is not the anomaly itself which is hereditarily transmitted but only the predisposition to this anomaly—that is, the ability to develop it when the necessary peristatic conditions for the particular anomaly are present.

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It is this innate faculty of *adaptation* which primarily determines the limits and qualities of a human individual with respect to his particular reactions to both predispositional and external morbid factors. The variations in these reactive abilities to protect the organism against pathologic influences depend on the degree of the individually developed physical and mental resistances that find their expression in the corresponding phenomena of constitution and character. What the character is in the province of mental development, the constitution is in the physical field. Together they form what finally defines the individual susceptibility or adaptability to morbidic elements.

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holds equally true that every case may appear as another variety in the outcome and dynamics of the conspicuous interplay among the particular genetic, constitutional, and external forces involved. There can be no doubt, however, that the essential biologic effect of these disorders is always characterized by a varying degree of disintegration in vital efficiency and mental adaptation. Even if clinically the different disease groups comprise many quantitative and qualitative variations between mild and reversible reactions and drastically deteriorating processes, genetically it is not difficult to understand that they constitute well-defined entities and originate by a uniform biologic mechanism with interchangeable components.

Inheritance of Schizophrenia and Manic-Depressive Psychosis

As to the special genetic pathology of these various disease groups, which can be outlined only briefly here, it is to be concluded from a variety of family and twin studies that schizophrenia and manic-depressive psychosis are based on autosomal hereditary factors that are specific and completely independent of each other. The reported occurrence of schizophrenic psychoses in the consanguinity of manic-depressive persons must either be regarded as an accidental association of the two traits in the same families or may be explained by certain inconsistencies in the diagnostic system employed. In confining the diagnosis of manic-depressive psychosis to those cases with alternating episodes of depression and elation which do not show real hallucinations, dissociated delusions, or a definite tendency to mental deterioration, we never find that the descendants or cotwins of manic-depressive patients become schizophrenic. It is also a fact that we have not observed one single manic-depressive case among the hundreds of blood relations and twin partners of schizophrenic trait carriers who have been used by us for the study of schizophrenic families and twins.

In view of the corresponding statistical results of these surveys it is our belief that the schizophrenic genotype³ is single-recessive and tends to be modified as to the time and expressivity of its clinical manifestations by the interactions of constitutional protective forces. The predisposition to manic-depressive psychosis appears to be more penetrant, but it is probable that several genetic factors are necessary to produce this anomaly.⁴ Schizoid personalities are genetically to be

taken as belonging to the schizophrenic disease group, either as heterozygotic hybrids with intermediate expressivity or as frustrated homozygotes with inhibited taint manifestation. Similar positions in the manic-depressive group are suggested for the various types of cycloid personalities and the distinctive category of paranoid reactions.⁵

The Genetic Determination of Psychopathic Personalities

The other, or simple, forms of psychopathy do not seem to be predisposed to by specific types of morbid gene combinations. Genetically, they are classifiable as the result of minor deviations from the state of perfect adaptability to the customary environment, in the sense of secondary reactions to the failure of achieving the desirable adjustment to a given life situation. The extent and general significance of this deficient capacity for self-preservation depend on both the average biologic qualities and the common social conditions of the respective population groups. There is no such thing as absolute or unconditional adaptation of a group of like persons, since the average individual is only adapted to life in his or her particular environment.

Theoretically, the same end result manifesting itself as a psychopathic state with paranoid features can originate if a basically deficient psychopath with malicious or fanatic character equipment is distinguished by a marked lack of adaptability to the ordinary life conditions of his community or if individuals with merely slight deviations from the normal type of emotionality are exposed to an exceptionally unfavorable community situation—for instance, through the inability to talk or to hear the common language of their fellow citizens. Analogously, there is no quantitative difference between the depressive reactions that are produced either by fairly strong persons in response to a really disastrous life experience or by fundamentally unbalanced personalities responding to trivial difficulties of life.

It is again the peculiarities of hereditary equipment and constitutional strength which primarily determine the particular adaptive qualities of a psychopathic individual to his given environment. Unfavorable social situations and shattering emotional experiences in early childhood or later life are largely effective as the precipitating causes which activate certain predispositional inadequacies that would probably become manifest sooner or

later through any kind of environmental trauma. It is not the unsolved Oedipus complex, for instance, that affects the biologic development and social adaptation of an unstable personality originally or involves a genetically normal individual in seemingly insurmountable life perplexities, but it is the innate inability of a basically insufficient person to overcome the Oedipus situation and to stand up to the ordinary difficulties of an average human life. It seems appropriate, therefore, to state that the primary determinants of psychopathic personalities and reactions are constituted by those kinds of insufficiencies in the genotypical structure and characterologic development which are genetically defined as polymorphic deficiencies in the biologic organization of a normal personality.

The Genetic Determination of Mental Deficiency

Polymeria must also be assumed with respect to the genetic determination of the common types of feeble-mindedness which, like psychopathy, is far from being a clinical or biologic unit. This heterogeneity is the main reason why little has been definitely established as to the inheritance of mental deficiency, although there has always been much speculation and hypothesis, as Slater⁶ put it in a recent review of the field. It also explains why the rarer and special forms have been better studied on the whole than the more common forms without striking organic features.

The estimates on the proportion of non-hereditary types of feeble-mindedness vary between 15 and 25 per cent. It is claimed that about half of the severer forms of idiocy are due to cretinism and congenital syphilis. There is certainly no need here to mention that syphilis, even when acquired by the child before birth through contagion from the mother, cannot be counted as hereditary. This ought to be understood by everyone in our profession, but actually it still happens not infrequently in general discussions about heredity that the case of congenital syphilis is cited as the first and clearest instance to be admitted as inheritable.

In reference to the really inherited group of common mental deficiency, it is fair to say that the present balance of evidence is definitely for the conclusion of a multifactor type of mendelian inheritance. It is usually suggested that there are recessive, as well as dominant, genes capable of producing feeble-

mindedness according to whether its manifestations are mild or severe. This would mean that even the circumscribed group of simple mental deficiency is not based on a single pair of specific genes but that its genotype is polymeric and may be manifested in a variety of intermediate forms.

Genetic Problems in Senile Dementia and Longevity

The urgency of thorough additional research, which is evident with regard to the genetic problems of feeble-mindedness, emerges still more clearly in the field of senile psychoses. As a matter of fact, senile dementia can at present be disposed of with the brief statement that there is still an almost complete lack of reliable information about possible predispositional or preforming factors contributing to senile mental enfeeblement. It is known only that the age at which senile dementia occurs varies as much as does the general phenomenon of longevity and that cases classified as senile psychoses are found more frequently in families tainted with some other form of psychopathology.

There are also the theories of Meggendorfer⁷ and Pearl⁸ suggesting that it is not duration of life as such which may be genetically determined but only longevity in the sense of a definite quantity of life energy and that it may be the total genotypical structure of the human organism rather than any particular gene which acts as a significant factor in the determination of length of life. The validity of these theories is supported by the observation that identical twin pairs quite frequently attain about the same great age before they die or before they develop similar senile disturbances, even if they have resided far apart and lived for decades under different life conditions. It is to be admitted, however, that no sufficient material of physiologic, genetic, and statistical data has as yet been collected to substantiate these still rather hypothetical assumptions.

Research Procedure of Medical Genetics

The most effective technic that is available for the investigation of this great variety of heredoconstitutional problems involved in the pathogenesis of common mental disorders is supplied by the *twin method* in connection with dependable descent studies. The promotion of accurate pathogenetic concepts is impossible in practically every branch of medical genetics without an arrangement of research which permits a comparison of tainted

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despite the great importance of mental disorders in the social order, so little attention is paid to man as an organism, who beyond a doubt transmits to his offspring genetic factors predisposing them to mental disorder. I think it may safely be said that experimental biologists dealing with the lower animals are far more careful in demanding definite controllable strains for their experiments than are the biologists who deal with the problems of medicine in the human. One may claim, of course, that such accuracy in humans is impossible, but in the hands of skilled and painstaking investigators, such as Dr. Kallmann, it is really quite remarkable how much can be learned concerning the operation of genetic factors in mental disorders. One of the reasons why genetics in relation to mental disorder has not prospered is undoubtedly because many of the so-called studies of heredity in mental disorders have been carried out by the use of the armchair or desk methods as contrasted with actual field studies and personal observations on the material by properly qualified, specialized physicians. The usual procedure has been for the investigators to calculate as statisticians all sorts of relationships based on the material purporting to give accurate clinical information concerning the mental disorders under investigation. However, these statistics really mean no more than the accuracy of the original descriptions of cases and clinical diagnoses justifies, and this is one of the most important aspects of Dr. Kallmann's work, which in my opinion, places it in a unique position in the field of studies dealing with the inheritance of mental disorders.

His thorough study of the genetics of schizophrenia, now known to most of us, was an example of the thorough psychiatric observational and diagnostic method and subsequent treatment of the material by proper statistical approach, with the result that it appears definite that there is undoubtedly a hereditary factor in schizophrenia. Dr. Kallmann has now extended his field of observation to include studies on groups of psychotic twins where, from the nature of the material, studies of great importance will undoubtedly emerge. Dr. Kallmann's investigations on twins extend at present to cover all hereditary factors in schizophrenia, manic-depressive psychosis, senile psychoses, tuberculosis, mental deficiency, and in some of the other rarer forms of neuropsychiatric disorder. His material is in my estimation unequalled, and I only hope that Dr. Kallmann may have the support and opportunity to carry out to their conclusions the studies so well under way. As stated above, such a course for an able psychiatrist is usually profitless save in the sense of having contributed to the advancement of scientific medicine. It is hoped that, paralleling such a careful scientific study on the application of genetics to mental disorder, similar research units may be organized in all of the various branches of medicine to allow study by properly qualified physicians on the operation of genetic factors in all fields of medicine. It seems to me that if this is done much will be learned concerning the human organism and its potentialities upon which rational therapeutic procedures can undoubtedly be carried out.

ONE OF OUR RULERS!

According to the United Press, "The late blind senator from Minnesota, Thomas Schall, wanted so much to see that he paid the 'I Am' cult \$1,000 for a miracle." His widow testified, in the trial of ten members of this cult charged with defrauding their victims of \$3,000,000 through the mails, that her husband was promised a restoration of his sight. In order to bring this miracle to pass, the head of the cult said that "he must visualize a ray of light from the mighty I Am presence, passing through the head, moving out at right angles, passing through his eyes." Apparently this ray of light acted only through the medium of United States Treasury notes, and the inference is rather plain that the larger the denomination of the notes, the more effective they were in attracting the ray of light from the mighty I Am presence.

This story would be ludicrous if it were not

tragic, comments the *North Carolina Medical Journal*. It is hard to believe that a man with enough intelligence to acquire a seat in the United States Senate could so easily be duped by such an old racket. Albert Edward Wiggam gives as one of the marks of the educated man that he cannot be sold magic. Judging from the gullibility of Senator Schall and of many other men with academic degrees, some of our educational institutions have failed sadly in their duty to many of their matriculates.

It does not make the average citizen feel any more comfortable to think that such a man could have an important part in shaping the destiny of our country. Let us hope that the average citizen will remember this insight into the scientific judgment of the politician, when the next bill is introduced in Congress to put medical practice in the hands of the politicians.

WILL YOU SHARE YOUR HOBBY?

The Hobby Guild of America, ever active in sponsoring exhibits, is now preparing a Hobby Fair to be held at Coney Island, and is asking doctors to lend their collections. They would welcome skulls, bones, fingers, nails, teeth, or the like. The Guild rightly believes that a hobby

helps to cure "crisis nerves," and they urge that every man, woman, and child adopt one. Full insurance will cover the exhibits. The Hobby Guild is located at 34 West 33rd Street, New York City, New York. Telephone LONGacre 5-0973.

figures for normal and tainted population averages with the statistical findings obtained from the study of unselected series of monozygotic and dizygotic twins with similar and dissimilar environments

Old-fashioned pedigrees of individual families with a fascinating, but possibly accidental, accumulation of inheritable traits may indeed be nice to look at. Practically, however, they are no more useful for scientific purposes than are the casual observations of single twin pairs that may be found by pure chance to be concordant or discordant for some kind of morbid condition. Even if such a family tree is as complete as possible, especially with respect to the collateral lines of descent and the biologic qualities of the marriage partners, its results never exclude the possibility of statistical sources of error.

It is only through the investigation of average families definitely affected by an anomaly of possibly hereditary nature that we are able to determine whether there really exists a special genetic factor predisposing to the recurrence of this anomaly in the consanguinity of its trait carriers. Twin studies then serve to show how often such an inherited trait is manifested by identical genotypes, to what extent its preformation and phenotypical expressivity are modified by constitutional and environmental influences, and what varieties of clinical manifestation are, or are not, realized under these different dispositional conditions.

If an anomaly is already known to be inheritable, the ultimate purpose of a twin survey does by no means consist of demonstrating that a majority of identical twins actually develop the given anomaly together and that they do it more frequently than a comparable group of fraternal twins. What is always to be considered as clinically more important is the study of those one-egg twin pairs that differ in onset or production of a particular morbid condition. A thorough analysis of all the possible biophysiologic forces that may be responsible in a potential trait carrier for failure or success in resisting the manifestation of the latent trait might prove to be the best way of clarifying the means by which to prevent and to heal the anomaly in question.

I should not like to let this opportunity pass without expressing to the entire medical profession of the State of New York my profound appreciation of the excellent cooperation that we have received in collecting representative materials of psychotic and tuber-

culous twins. We trust that this kind of collective research will produce satisfactory results and soon rectify the old misconception that curability and inheritability are incompatible. Our main hope, however, is that it will stimulate wider professional interest in the pressing problems of modern medical genetics.

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Discussion

Dr S. Eugene Barrera, *New York City*—Dr Kallmann has presented a necessarily sketchy, but nevertheless timely and important, discussion of some of the problems involved in the application of genetics to mental disorders. So much is constantly being said concerning the great importance of mental hygienic and psychotherapeutic possibilities in mental disorders that it is well to present occasionally an attempt to study in some way the basic, hereditarily endowed human material on which therapeutic possibilities rest. Such a course is perhaps more painstaking, financially profitless, and thankless than some of the more spectacular approaches. Dr Kallmann himself knows this only too well, and it is perhaps due, in part at least, to such a condition that human genetics, especially in mental disorders, has lagged and perhaps been temporarily eclipsed. Then it may be that many do not like to have a disorder labeled hereditary, because they then quite erroneously develop an attitude of hopelessness and futility concerning it. But as Dr Kallmann himself has stated, a disorder for which a hereditary factor or factors may be present should not be considered as absolutely determined for its actual occurrence, and even if the disorder in its actual occurrence was hereditarily determined the situation, from the therapeutic standpoint, would not be considered differently. A proper knowledge of such a genetic predisposition would allow rather a wise and rational application of suitable hygienic and therapeutic measures in an attempt to prevent the actual occurrence of the disorder to which the individual was predisposed by heredity and to treat it, once it had developed, under proper environmental conditions.

It is an interesting but deplorable fact that,

despite the great importance of mental disorders in the social order, so little attention is paid to man as an organism who beyond a doubt transmits to his offspring genetic factors predisposing them to mental disorder. I think it may safely be said that experimental biologists dealing with the lower animals are far more careful in demanding definite controllable strains for their experiments than are the biologists who deal with the problems of medicine in the human. One may claim, of course, that such accuracy in humans is impossible, but in the hands of skilled and painstaking investigators, such as Dr. Kallmann, it is really quite remarkable how much can be learned concerning the operation of genetic factors in mental disorders. One of the reasons why genetics in relation to mental disorder has not prospered is undoubtedly because many of the so-called studies of heredity in mental disorders have been carried out by the use of the armchair or desk methods as contrasted with actual field studies and personal observations on the material by properly qualified, specialized physicians. The usual procedure has been for the investigators to calculate as statisticians all sorts of relationships based on the material reporting to give accurate clinical information concerning the mental disorders under investigation. However, these statistics really mean no more than the accuracy of the original descriptions of cases and clinical diagnoses justifies, and this is one of the most important aspects of Dr. Kallmann's work, which in my opinion, places it in a unique position in the field of studies dealing with the inheritance of mental disorders.

His thorough study of the genetics of schizophrenia now known to most of us, was an example of the thorough psychiatric observational and diagnostic method and subsequent treatment of the material by proper statistical approach with the result that it appears definite that there is undoubtedly a hereditary factor in schizophrenia. Dr. Kallmann has now extended his field of observation to include studies on groups of psychotic twins where, from the nature of the material, studies of great importance will undoubtedly emerge. Dr. Kallmann's investigations on twins extend at present to cover all hereditary factors in schizophrenia, manic depressive psychosis, senile psychoses, tuberculosis, mental deficiency, and in some of the other rarer forms of neuropsychiatric disorder. His material is in my estimation unequalled, and I only hope that Dr. Kallmann may have the support and opportunity to carry out to their conclusions the studies so well under way. As stated above, such a course for an able psychiatrist is usually profitless save in the sense of having contributed to the advancement of scientific medicine. It is hoped that, paralleling such a careful scientific study on the application of genetics to mental disorder, similar research units may be organized in all of the various branches of medicine to allow study by properly qualified physicians on the operation of genetic factors in all fields of medicine. It seems to me that if this is done much will be learned concerning the human organism and its potentialities upon which rational therapeutic procedures can undoubtedly be carried out.

ONE OF OUR RULERS!

According to the United Press, "The late blind senator from Minnesota, Thomas Schall, wanted so much to see that he paid the 'I Am' cult \$1,000 for a miracle." His widow testified, in the trial of ten members of this cult charged with defrauding their victims of \$3,000,000 through the mails, that her husband was promised a restoration of his sight. In order to bring this miracle to pass, the head of the cult said that "he must visualize a ray of light from the mighty I Am presence, passing through the head, moving out at right angles, passing through his eyes." Apparently this ray of light acted only through the medium of United States Treasury notes, and the inference is rather plain that the larger the denomination of the notes, the more effective they were in attracting the ray of light from the mighty I Am presence.

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It does not make the average citizen feel any more comfortable to think that such a man could have an important part in shaping the destiny of our country. Let us hope that the average citizen will remember this insight into the scientific judgment of the politician, when the next bill is introduced in Congress to put medical practices in the hands of the politicians.

WILL YOU SHARE YOUR HOBBY?

The Hobby Guild of America, ever active in sponsoring exhibits, is now preparing a Hobby Fair to be held at Coney Island, and is asking doctors to lend their collections. They would welcome skulls, bones, fingers, nails, teeth, or the like. The Guild rightly believes that a hobby

helps to cure "crank nerves," and they urge that every man, woman, and child adopt one. Full insurance will cover the exhibits. The Hobby Guild is located at 34 West 33rd Street, New York City, New York Telephone 1409000 5-0973

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helps to cure "crisis nerves," and they urge that every man, woman, and child adopt one. Full insurance will cover the exhibits. The Hobby Guild is located at 34 West 33rd Street, New York City, New York. Telephone LONGacre 5-0973.

Case Reports

SUBLUXATION OF THE HEAD OF THE RADIUS IN INFANCY

OTHO C HUDSON, M D , F A C S , Hempstead, New York

THE occurrence of this injury is so common that more consideration should be given it in textbooks

The pediatrician is frequently called to see a small child between 18 months and 3 years of age who is crying because of pain in the arm. The history is that someone jerked the child's arm upward or that the child fell on the arm, resulting in immediate pain.

An examination of the shoulder, fingers, and wrist is normal. The extremity is held against the side with the forearm pronated. Any attempt to supinate the forearm causes pain. X-

ray examination is negative. During the examination, with one hand controlling the forearm and the opposite thumb over the head of the radius, the elbow is extended and completely supinated. Pressure over the head of the radius is made with the thumb. A distinct click can be felt as the subluxation is reduced.

A simple adhesive dressing with the arm in flexion for fourteen to twenty-one days is all the additional treatment needed.

There is no disability.

Professional Building

ACUTE TRAUMATIC APPENDICITIS

HAROLD LINSKY, M D , F A C S , New York City

A 28-YEAR-OLD prize fighter, H B, was admitted to the St. Albans Hospital on September 1, 1938, complaining of pain in the lower part of the abdomen. Two days before admission he had received a hard punch below the belt and had experienced a severe pain for a short time. The pain had stopped but it was followed by nausea and pain in the upper part of the abdomen. He did not vomit but his pain increased, localizing in the lower part of the abdomen. The examination showed tenderness in the entire lower part of the abdomen, with rebound tenderness and marked rigidity in the right lower quadrant.

The operation revealed no free fluid, the intestines were completely covered by dense membranous adhesions, probably due to frequent traumatizations. The cecum and the appendix, which was behind it, were plastered to the posterior parietal wall. The appendix

was elongated, thickened, and dark throughout, had a broad base, and contained several fecaliths. The appendix was removed with great difficulty, and a cigarette drain was placed into the necrotic bed.

The pathologic examination was reported by Dr. Samuel Barland as follows: "The specimen consists of an appendix measuring 7 cm. in length. The serosal surface is covered by a brown fibrinous exudate. On section the various layers are found to be necrotic. The microscopic section shows a diffuse infiltration of polymorphonuclear cells throughout all the layers. Diagnosis: Gangrenous Appendicitis."

The course in the hospital was uneventful. There was some purulent colon discharge from the lower angle of the wound that otherwise healed by primary union. The patient was discharged in twelve days with a final diagnosis of acute traumatic gangrenous appendicitis.

TREATMENT OF A SEVERE CASE OF VINCENT'S ANGINA WITH SULFANILAMIDE DERIVATIVE

LOUIS PELNER, M D , Brooklyn

SEVERE cases of Vincent's angina are fortunately rare. That these cases can be serious and often result in death is demonstrated by a report showing 8 deaths from this disease in 1938 in the state of Kansas alone.¹

Another case report shows the tremendous morbidity occasioned by a severe case of Vincent's angina involving the nose, throat, and larynx. The patient finally recovered after much treatment that included several blood transfusions.²

Personal knowledge of a severe case, treated by a colleague, in which the patient finally died because of laryngeal involvement after having received all of the accepted treatments

(including neosarsphenamine locally and intravenously, as well as irrigation with hydrogen peroxide locally) suggested the thought that perhaps another drug was necessary in these severe cases of Vincent's angina.

That neosarsphenamine intravenously and locally is not the answer to the situation in these individuals is shown by Farrell and McNichols,³ who had 6 of their patients develop Vincent's angina although they were under treatment at the time for syphilis with arsenicals. The difference between the mild cases of Vincent's stomatitis, which are easily cleared up by many forms of treatment, and the severe cases, which are refractory to treatment and often die, might

lead one to believe that there may be a secondary pathogenic invader besides the common organisms involved, perhaps because of the lowered resistance of the subject

A derivative of sulfanilamide (neoprontosil*) was used effectively in a severe case involving the pharynx, tonsils, and hard and soft palate

Case Report

S D, a man in good physical condition, aged 25, came to me with severe pain in the throat of two days' duration. There was malaise, anorexia, severe pain on swallowing or talking, fetid breath, and blood-tinged expectoration, especially on rinsing the mouth or when gargling. Physical examination revealed a widespread involvement of the oral cavity extending from the hard palate to the pharynx. There was marked redness and edema over this entire area, which made it impossible for the individual to swallow and difficult for him to talk. The white blood count revealed 8,000 white blood cells with 75 per cent polymorphonuclears and 25 per cent lymphocytes. A smear taken from the tonsillar area revealed myriads of Vincent's organisms, as well as streptococci. The temperature was normal and the pulse rate was 100.

Because of the widespread involvement of the oral cavity it was decided to try neoprontosil in full doses by mouth, along with saline irrigations every two hours. When first seen, the condition appeared to resemble an erysipelas lesion of the skin, except that it was limited to the mucous membrane of the mouth. Eighty grains of neoprontosil were given the first day, 60 grains the next, and 45 grains each day for the following two days.

Within twenty-four hours the lesion had cleared remarkably. At this time a few isolated spirochetes and fusiform bacilli were found. The streptococci were still numerous.

Coincident with the clearing of the pharynx,

* Formula Disodium 4-sulfamido-phenyl 2-azo 7-acetyl amino 1-hydroxynaphthalene 3,6-disulfonate.

however, there appeared a mild infection of the gums, as well as a few small ulcers in the cheek. These failed to show any Vincent's organisms on smear. These manifestations cleared up markedly in one day with the continuation of neoprontosil and with the painting of neoprontosil solution (made by dissolving $\frac{1}{2}$ tablet in an ounce of water). No other medication was used. Within forty-eight hours the oral lesion entirely cleared up, the fetid odor had disappeared, and the patient was well enough to eat anything.

This case shows an extremely rapid response of a severe case of Vincent's angina following the use of a sulfanilamide compound without any other medication. Perhaps these severe, and often fatal cases of Vincent's angina are secondarily invaded by streptococci, which may be the reason why they suddenly become so severe. In that case the sulfanilamide compounds would surely be the indicated remedy. However, several smears repeated after twenty-four hours of this therapy failed to show any Vincent's organisms. This would seem to show that these compounds are even more specific against the Vincent's organisms.

Comment

A severe case of Vincent's angina was successfully treated with sulfanilamide compound (neoprontosil). In view of the extreme severity of these cases, it is hoped that a further trial will be given this drug. No other medication was given this patient, except saline irrigations, and the neoprontosil solution was applied directly to the ulcers. This local application is probably at least as effective as other aniline or acridine dyes.

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A LOCULATED INGUINAL HERNIA SIMULATING UNILATERAL INGUINAL AND FEMORAL HERNIAS

WILLIAM M. UNOBSKEY, M.D., New York City

A REVIEW of the literature fails to disclose a description of a case of an inguinal hernia in which the distal portion of the sac had herniated into the femoral triangle by way of a hiatus in Poupart's ligament.

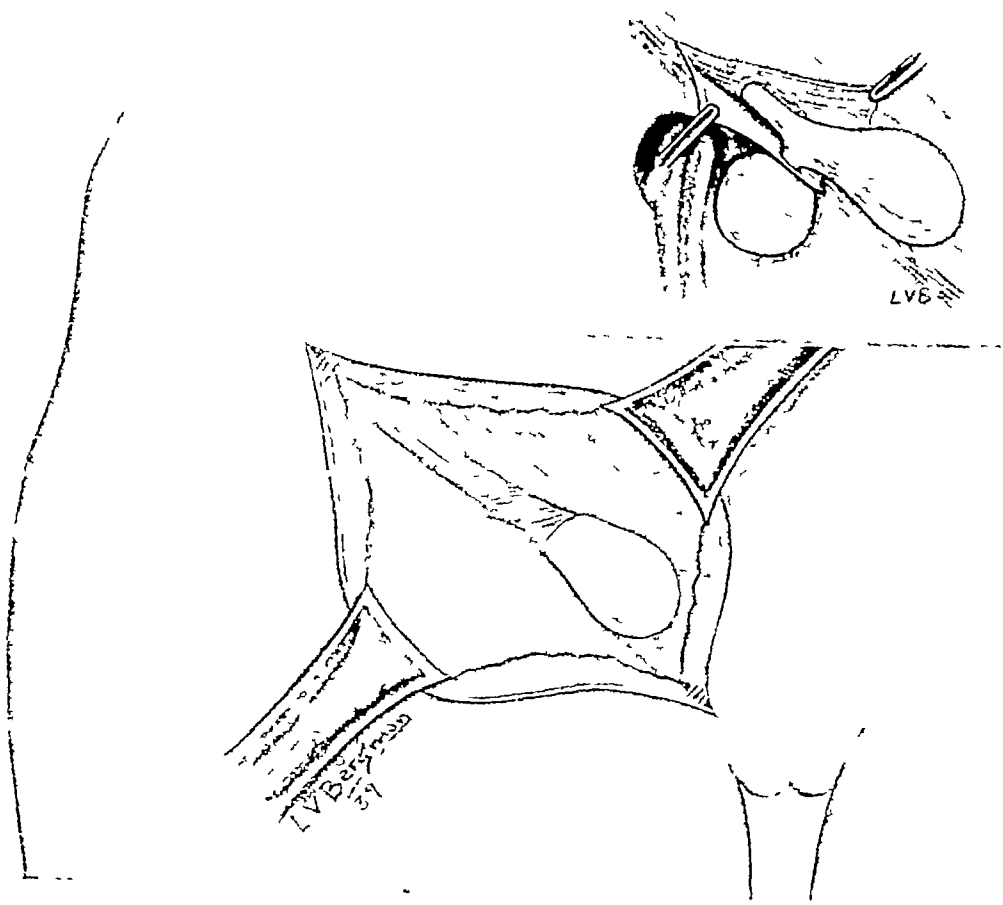
Case Report

History—A. F., a young woman aged 32, (para II), stated that for the past four years she had noticed a painless swelling in the right groin which had been progressively growing larger, the mass was partially reducible. There was no history of trauma or previous operation.

Physical examination disclosed a well-developed woman with negative findings throughout except for a swelling in the right groin, the size was about 3 cm. in width and 5 cm. in length, extending from about 3 cm. above Poupart's

ligament to about 2 cm. below. The mass was partially reducible. A diagnosis of inguinal hernia was entertained.

Operation—An incision was made parallel to, and a short distance above, Poupart's ligament. The external oblique aponeurosis, the inguinal ligament, the fascia lata of the thigh, and the femoral triangle were exposed. The external abdominal ring was also isolated, and a mass was found lying anterior to the round ligament at its exit through the ring. A mass that turned out to be a distal portion of the hernial sac was also seen in the femoral region, apparently coming through Poupart's ligament. The fossa ovalis, the usual site through which a femoral hernia enters the thigh, was visualized and was found empty. The external oblique aponeurosis was then divided parallel to the inguinal ligament. On reflecting the two flaps, the hernial sac, which was seen at the external abdominal ring lying



anterior to the round ligament, was dissected away and traced to the internal abdominal ring. The distal portion seemed continuous with the mass seen in the femoral triangle. The shelving edge of Poupart's ligament was denuded, and the femoral canal beneath Poupart's ligament was exposed. There was no mass in the femoral canal. The two sacs were continuous.

Close examination revealed that a portion of the distal end of the hernial sac of the inguinal region had passed through a hiatus in the lower portion of Poupart's ligament, about 1 inch mesial to the femoral vessels and about $\frac{1}{2}$ inch medial to the femoral ring. The portion of the sac which passed through Poupart's ligament was adherent to it. These adhesions were free, and the portion of the sac in the femoral region was pulled through the opening in Poupart's ligament into the inguinal region, thus converting two masses into one large inguinal hernia. The entire hernial sac was then dissected free from the surrounding structures and opened, the contents were replaced into the peritoneal cavity. The neck of the sac was then ligated by means of

a suture ligature, the ends of which were left long. These ends were used to transfix the neck of the sac high up under the internal oblique muscle. The gap in the inguinal ligament was closed by means of interrupted chromic catgut mattress sutures, which also took in the underlying pectineus fascia. The fossa ovalis was also closed by means of interrupted chromic catgut sutures. The femoral ring was closed by means of interrupted chromic catgut mattress sutures, also including the pectineus fascia. A typical Bassini hernioplasty was then done, closing the inguinal hernia. The external oblique fascia was closed with continuous chromic catgut and the skin with silk sutures.

Conclusion

A case is presented in which an abnormal aperture was found in Poupart's ligament. Through this hiatus the distal portion of an inguinal hernial sac had passed, forming a mass that simulated a femoral hernia.

EXFOLIATIVE DERMATITIS (RITTER'S DISEASE) TREATED WITH SULFATHIAZOLE

ADOLPH G. DE SANCTIS, M.D., and F. C. DE LORENZO, M.D., New York City

EXFOLIATIVE dermatitis occurring within the newborn period was first described by Ritter¹ in 1879. It was his impression that the disease was not contagious. Ritter's disease, as exfoliative dermatitis is commonly called, has been related to pemphigus neonatorum,^{2,3,4} being described by some authors as a further progression of pemphigus. This relationship is by no means settled,⁵ and discussions often arise as to the diagnosis of an exfoliating skin in a newborn, especially in the rare occurrence of several vesicles or bullae early in the Ritter's disease.

The etiology of exfoliative dermatitis in the newborn still remains obscure. A number of possible causes have been reported in the literature, but recently Kendall and Aegerter⁶ in a review of the literature and a report of a case of Ritter's disease concluded that proof was lacking in establishing any of these as etiologic agents and that the etiology of Ritter's disease was still unknown. However, infection has frequently been presented as a probable cause, and von Vonno⁷ was able to isolate *Staphylococcus pyogenes albus* or *aureus* from the tissues of his case coming to autopsy. Aegerter and Kendall,⁶ upon culturing the tissue below the exfoliating skin, found *Staph. aureus*.

Treatment of exfoliative dermatitis has been confined more or less to supportive measures. As yet we have been unable to find in the literature, any case treated with sulfathiazole.

Case Report

A white male infant of Jewish parentage, aged 16 days, was admitted with a history of having been discharged from another hospital ten days postnatal in excellent condition. Two days after he was home a small vesicle was observed above the umbilicus. This was soon followed by several vesicles about the mouth and marked exfoliation of the lower extremities. The infant became severely ill, and the exfoliation spread within the ensuing four days (Fig 1). He had been circumcised by a Rabbi seven days after birth. Postoperative course was normal with no evidence of infection.

Physical Examination.—The baby was a full-term infant, weighing 7 pounds and 4 ounces. He was apathetic, was acutely ill, and had a rectal temperature of 100.2 F. There were several purulent vesicular and bullous lesions about the mouth and upper extremities, and two ruptured vesicles were on the right thigh. Extreme exfoliation leaving in its wake a smooth, dry and red, firm surface was found on the lower extremities, genitalia, and lower part of the abdomen, with no further evidence of vesicles or bullae than those already described. There was also peeling about the mouth. Heart, lungs, abdomen, ears, and nasopharynx were all

negative. Upon rubbing the normal or involved skin on the chest, the skin peeled easily, indicating a positive Nikolsky sign. The penis, which had been circumcised six days before, showed no other pathology than exfoliation. The sedimentation rate was 40 mm per hour. There were 3,890,000 erythrocytes, with 12.5 Gm. of hemoglobin and 11,900 white blood cells per cubic millimeter. Urine and Wassermann tests were negative. A culture of the skin showed predominating *Staph. aureus* and several *Streptococcus hemolyticus* colonies. *Staph. albus* was found on a single blood culture contaminated with other organisms.

A diagnosis of Ritter's disease was made at this time.

Sulfathiazole, 4 grains, was given immediately upon admission, and a maintenance dose of 1 grain every three hours was prescribed. The infant was placed in a heat cradle. Ascorbic acid, 25 mg twice a day, oleum of percomorphum, 2 drops twice a day, fluids by mouth, and an evaporated milk formula were also ordered.

Within two days the infant showed marked general improvement, but exfoliation progressed to include all the parts not previously involved. There were no new bullae or vesicles, the skin becoming first extremely wrinkled and then peeling, leaving behind a surface previously described. At this time he developed frequent mushy and watery stools and a temperature of 102 F rectally. The heat cradle was then removed. White blood count was 17,900 with 31 per cent neutrophils, 4 per cent eosinophils, 58 per cent lymphocytes, and 6 per cent monocytes. Eighteen per cent of the neutrophils were nonflamed. There was one normoblast.

The temperature fell to normal on the following day, with no further rise. Feedings were taken well and improvement continued. The Nikolsky sign was found negative four days after admission, and exfoliation had diminished considerably. Two days later the skin was clear, with minimal evidence of peeling. Stools became normal within five days following the onset of diarrhea. Sulfathiazole was discontinued four days after its first administration. The infant was discharged ten days after admission in the excellent condition he had maintained for four days. He had gained 10 ounces while in the hospital.

Discussion

The question was raised early in this case whether this was one of exfoliative dermatitis or one of pemphigus neonatorum. However, after several days of observation and upon seeing the extreme exfoliation with no further bullous or vesicular formation, the general opinion was in favor of Ritter's disease as the diagnosis.

It was felt that the rise in temperature was due to the heat tent. The diarrhea was probably a complication of sulfathiazole since immediate improvement in the stools was observed upon discontinuing the drug.

From the Department of Pediatrics, New York Post-Graduate Medical School and Hospital.



Fig 1

Because no specific therapeutic measures were known and because of the possibility that the etiology of Rutter's disease might be *Staph aureus* or *albus*, sulfathiazole was administered in this case. Opinion was unanimous that the infant made remarkable progress under a sulfathiazole regimen.

No relationship could be definitely established between the disease and the circumcision.

Conclusion

We suggest the use of sulfathiazole in the

treatment of pemphigus neonatorum or exfoliative dermatitis in the newborn.

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"A DOCTOR IS A FUNNY GUY"

During the influenza epidemic, when nearly everybody except the doctors were sick, someone asked what happens when the doctor gets sick, says the *Journal of the Medical Association of Alabama*. This is the question. "If a doctor is doctoring a doctor, does the doctor doing the doctoring have to doctor the doctor the way the doctor being doctored wants to be doctored, or does the doctor doctoring the doctor doctor the doctor in his own way?"

A Miss Clara May Waldron seems to have answered the question with a poem entitled "A Doctor Is a Funny Guy."

A doctor is a funny guy!
He tells us that we're sure to die,
If we don't hustle into bed
The minute that our throats get red,
And temperatures rise two degrees,
And we begin to cough and wheeze.
But when he gets the self same way,
He thinks he's made of tougher clay,
That he can gambol in the rain
In spite of fever, cough, and pain
His rules, when other folks are ill,
Applied to him, are simply nil
He's different, tho he can't tell why
A doctor is a funny guy

YOUR COMMITTEE APPOINTMENT

The committees cover every phase of economic and scientific endeavor in which medical men can be interested, and to be appointed to a committee should be, and can rightly be, considered an honor. But such honor is of no value unless a man feels the necessity of lending not only his support but his presence at committee meetings. The association needs every man's constructive view in committee deliberations, especially in these momentous times. Once a man gets into the swing of medical thought he will miss the enthusiasm of committee contacts if unable to attend.

An exchange of ideas in local societies will soon wear away the barrier of indifference and each individual, as well as the society as a whole, will be the gainer, but each one should attend his committee appointments without fail. Democracies are controlled by the associational ideas that are freely given in committee or other similar bodies deliberating for the good of the whole. There is something of interest happening which you lose by not attending. Your committee chairman and the officers need your help as well as criticism. Dictators or inside cliques will find no place in any association where well-functioning committees are found.—B. J. Branton, M.D., president, Minnesota State Medical Association.

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors. The next report will appear in the August 1 issue and will concern "The Use of Human Convalescent Serum."

The Use of Vitamin B Fractions

DR EUGENE F. DuBOIS. The conference today deals with the use of the vitamin B fractions. We are fortunate in having with us Dr. Norman Jolliffe of the New York University College of Medicine.

DR NORMAN JOLLIFFE. Since the clinical investigator has had available several of the crystalline B vitamins in amounts adequate for clinical study, many advancements have been made in the field of nutrition. These advancements have resulted because it is now possible to give these pure chemical substances singly and in large doses, both of which were impossible when the B vitamins were available only in concentrates.

One of the advancements resulting from the controlled use of these synthetic vitamins is the ability to recognize, to some extent, the specific clinical manifestations of deficiency of certain of these specific vitamins. For example, when brewer's yeast was the only available source of the B vitamins, we were unable to tell which of the fractions produced the improvement. For instance, we recognized the syndrome, now known as ariboflavinosis, as a deficiency of some fraction of the B complex. This syndrome consists of cheilitis and fissures at the angles of the mouth and, in more advanced cases, filiform excrescences in the nasolabial folds and sometimes over the cheeks and the forehead. We knew that by maintaining a patient with a diet poor in the entire B complex those signs did not, as a rule, improve and often grew worse. When we supplemented this diet with whole liver, liver extracts, brewer's yeast, or autolyzed brewer's yeast, these signs disappeared, but we were unable to say which of the fractions in the B complex brought about this improvement. It was not until riboflavin became available that we were able to show that these signs were manifestations of riboflavin deficiency.

In the same way the etiology of several

other manifestations of pellagra was proved. Nicotinic acid therapy is followed by clearing of the scarlet-red stomatitis, the diarrhea, and the characteristic dermatitis, but it is not followed by a cure of the peripheral neuropathy. Thiamin chloride, however, will relieve the peripheral neuropathy in pellagra.

In addition to allowing us to recognize the specific clinical manifestation of a deficiency in a specific B vitamin, the true etiology of certain syndromes that were not heretofore suspected of being a deficiency disease has now been demonstrated. For example, a neurasthenic syndrome has recently been shown, I believe, fairly conclusively by Williams, Mason, Wilder, and Smith to be a manifestation of thiamin deficiency. They placed a group of women at rest on a diet deficient in thiamin and apparently adequate in everything else. The resulting symptoms were those of a neurasthenic syndrome. By the addition of thiamin to the diet, these neurasthenic symptoms disappeared. Similarly, workers in the South have shown that many of the so-called neurotic manifestations of pellagra, either preceding or accompanying the clinical signs of pellagra, were relieved by nicotinic acid.

A third advancement resulting from the availability of the crystalline vitamins is the proof that deficiency disease in man is usually a multiple deficiency. This is too well known to require amplification. Pellagra is the classic example.

There are two important principles I wish to stress in the therapeutic use of crystalline vitamins.

First, err on the side of giving an excess rather than giving too little. I know of no experiment on human beings which has been set up directly to prove this point. However, we do have experiments that I think fairly well indicate this point. In groups of patients

having a "standard" polyneuritis, those receiving the predicted maintenance dose of vitamin B₁ showed no improvement within one month. Those receiving twice their predicted maintenance requirement showed minimal improvement. Those receiving four times this requirement showed much better improvement, while those receiving four times their predicted maintenance requirement plus 10 mg of thiamin daily by parenteral injection showed still better improvement. So we believe that the rate and degree of improvement in these "standard" patients is directly related to the amount of thiamin, that we must give at least two times the predicted daily requirement to get any response at all, and that the best response is obtained when we give somewhere between four and twenty times the maintenance dose. We have carried these experiments further and have given forty, fifty, sixty, and one hundred times the predicted maintenance requirement without significantly better results. We cannot say whether five times or ten times the predicted requirement would have given as good results as twenty times.

The second important therapeutic principle I want to emphasize is this: There is something in a good diet that you cannot supply by any combination of the crystalline vitamins now available or supply by any of the concentrates. I think I can show you that. We placed these "standard" patients on the "basal" diet supplemented by 10 mg of thiamin. The response, as a group, in ten days showed 40 and 60 per cent motor and sensory improvement, respectively. Other groups were given—in addition to the basal diet plus 10 mg of thiamin—nicotinic acid, ascorbic acid, or riboflavin, either singly or in combination, with the same results. The addition of the vitamin B complex by mouth, or parenterally, also did not better the results.

DR H B RICHARDSON: Certain parts of the B complex?

DR JOLLIFFE: No, the entire B complex, either given by mouth or parenterally. By the entire complex I mean brewer's yeast or liver. These did not increase the rate of recovery. However, the "standard" patients who received a good diet plus 10 mg of thiamin, almost all showed further improvement within ten days. This means that there is something in a good diet which we cannot supply by giving yeast or liver extracts, we cannot supply it by any of the crystalline vitamins studied or by any combination of these vitamins studied. So now I think that

we have illustrated two important therapeutic principles. First, err on the side of giving an excess rather than too little of the crystalline vitamins; second, in treating patients with any deficiency disease, in addition to administering the specific vitamins, treat the patient with a good diet.

I will relate a case history illustrating this point. A 34-year-old, white, female patient was transferred to our service from an institution for the care of epileptic cases, where she had been a patient for five years. On admission she had scurvy, riboflavin deficiency, and pellagra. We placed her on our "basal" diet. First, we gave her ascorbic acid and the scorbutic manifestations promptly cleared. We then gave her nicotinic acid and the scarlet-red stomatitis cleared within forty-eight hours, and in about a week the dermatitis began to show definite improvement. We then gave her riboflavin and cleared up the cheilitis and angular fissuring. In the meantime, because of the basal diet, she developed a polyneuritis. We then gave her thiamin and cleared up the polyneuritis. The specific signs of all of these deficiency diseases cleared following the use of the crystalline vitamins, but the patient had not gained strength or weight and was still a thin, pitiable-looking sight. She did not have the sore mouth, the cheilitis, the dermatitis, or the polyneuritis, but she was still a sick person. Then we gave her a good diet and within a period of a month she gained 20 pounds and regained her strength. In other words, treatment with these pure chemical substances is not adequate treatment for the patient. You are only treating the specific manifestations of a specific clinical deficiency.

DR OSCAR BODANSKY: What do you define as a good diet? What is the proportion of the various constituents?

DR JOLLIFFE: Our "good" diet is made up of large amounts of meat, including liver or pork, fresh vegetables of all kinds, 16 ounces of orange juice, whole wheat bread, whole grain cereals, butter, milk, cream, and eggs. There is not a single refined article of food, except for a minimum amount of sugar, in the diet. It gives about 1,000 international units of thiamin, and it is rich in all of the other essential elements of nutrition. Our basal diet is inadequate, at least in thiamin, riboflavin, and nicotinic acid, because we have seen polyneuritis, riboflavin deficiency, and pellagra develop in persons consuming this diet and then be relieved by thiamin, riboflavin, and nicotinic acid.

DR EPHRAIM SHORR You include 16 ounces of orange juice Now, would it not, for economic reasons, be possible to substitute for the 16 ounces of orange juice ascorbic acid and still have that diet in all other respects optimum?

DR JOLLIFFE I would think, as far as the development of scurvy is concerned, yes, but orange juice contains factors other than vitamin C

DR SHORR Sixteen ounces is a rather high quota in any diet

DR JOLLIFFE That is so, but these diets are not for maintenance but for therapy

DR DuBOIS What are the main constituents of the basic diet?

DR JOLLIFFE The main constituents are rice, white bread, long-cooked vegetables, butter, and lard

DR JANET TRAVELL May I ask a question about the maintenance of these patients? For curative purposes you gave large doses of crystalline vitamins plus a good diet When you have cured the patient, do you continue the maintenance doses of vitamins or is an adequate diet sufficient? Have they some special need for these vitamins?

DR JOLLIFFE Frankly, most of the patients go out and return to the diet they were on before, however, they are given dietary instructions that include taking daily a source of the entire B complex, such as brewer's yeast

DR TRAVELL What do you consider to be the "predicted daily requirement" of the members of the B complex which you mentioned?

DR JOLLIFFE These vary with age, weight, caloric intake, and activity But for a man weighing approximately 70 Kg doing light or sedentary work and consuming approximately 3,000 calories, I would consider any diet containing less than 2 mg of thiamin, 3 mg of riboflavin, and 20 mg of nicotinic acid as requiring upward revision I think an optimal diet should contain even more, possibly 3 mg of thiamin, 5 mg of riboflavin, and 30 mg or more of nicotinic acid I know of no data concerning the known requirements of pyridoxine or pantothenic acid

DR DuBOIS We are trying to revise our hospital diet so that it will be less expensive and yet contain an adequate supply of vitamins The question comes up whether it is safe to use concentrates of the vitamins. It is quite evident from what has been said that we have to keep up a basic diet that is of high quality

DR Bodansky, will you continue the discussion from the chemical standpoint?

DR BODANSKY I should like, first, to elaborate the point which Dr Jolliffe raised—namely, that crystalline thiamin is not as effective in treating thiamin deficiency as a "good diet" containing the same amount of vitamin It seems to me this finding indicates one or more of several interesting possibilities There may be another factor in the "good diet" which is also capable, to some degree, of preventing what we designate clinically as thiamin deficiency Or there may be some factor present in the "good diet" which enhances the effectiveness of thiamin Finally, we must consider the possibility that certain conditions of a physicochemical nature may influence the efficiency of thiamin It is of interest in this last connection to note that irradiated ergosterol in a dispersed state, as in milk, is more effective in the prevention of rickets than the same amount of material in a concentrated form.

There is good evidence for the existence of factors in the vitamin B complex besides those that have already been defined as chemical compounds and that have been mentioned by Dr Jolliffe One of these is vitamin H, or the anti-egg white injury factor Though the chemical structure of this vitamin has not yet been determined, it has been demonstrated with a high degree of probability that it is identical with biotin and coenzyme R Another factor in the vitamin B complex which has received a good deal of attention recently is the factor that prevents graying of hair (achromotrichia) It has just been reported that para-aminobenzoic acid exerts a considerable anti-gray hair effect It should, of course, be mentioned here that the effects of vitamin H and the anti-gray hair factor have so far been observed only in animals

In regard to the point that more than one substance may participate in the prevention of an observed deficiency, it has been shown that pantothenic acid also plays a role in the prevention of achromotrichia, although it alone is not completely effective. Again, it has been found that optimal growth in rats is not obtained even when all the known factors of the vitamin B complex are added to a diet adequate in other vitamins There appears to be still another as yet unidentified necessary factor obtainable only through the addition of liver or rice-bran concentrate

A recent finding indicates that the factor of balance of the vitamin B components in the diet may be of importance Choline has also

been considered as a member of the vitamin B complex, deficiency of this member in the diet leads, in rats, to fat infiltration of the liver Gyorgy and Goldblatt have shown that the *addition* of pyridoxine (B_6) aggravates the specific effects of the choline deficiency It must be emphasized that this finding is so far of theoretic interest and has, as yet, no therapeutic applicability

Consideration of the marked derangements that result in the various vitamin B deficiencies leads us to think of how the various factors in the complex may be involved in the normal functioning of the cell We have a little information here that is of great interest As you know, the activities of body cells depend upon energy changes, the most important changes of energy are associated with oxidation-reduction reactions The cells contain pairs of substances which constitute reversible oxidation-reduction systems and which form series through which atoms are transferred from the foodstuff molecule at one end of the series to molecular oxygen at the other end During the past few years it has been discovered that some of these substances in the oxidation-reduction systems are members of the vitamin B complex For example, the yellow enzyme that Warburg and Christian found to participate in the oxidation of hexoses turned out to be a combination of riboflavin phosphate and a protein The various coenzymes involved in similar oxidations were found to be phosphopyridine nucleotides, in which the structure of nicotinic acid figures prominently The oxidation of carbohydrates also involves the action of the enzyme, carboxylase It has been shown that the associated coenzyme that used to be called co-carboxylase is thiamin diphosphate Thus, we can see that certain members of the vitamin B complex are fundamentally involved in cellular processes and indeed merit the name "vitazymes," which has been given to them Future work may reveal similar roles for the other members of the complex

DR DuBois Dr Dunning, have you any comments from the standpoint of the results obtained here in the Neurological Department?

DR HENRY S DUNNING During the last year and a half I have examined several patients in the New York Hospital with polyneuritis, variously classified as infectious, toxic, allergic, due to nutritional deficiency associated with alcohol, and idiopathic Therapeutically, they all had bed rest and received a normal diet and, with the exception of the allergic case, the whole vitamin B

complex in the form of wheat germ or yeast and, in some instances, additional thiamin chloride and B_6 by injection The results have varied widely, and the conditions were such that we cannot determine the effect of any one of the vitamin B fractions, nor can it be said with surety that the use of vitamin B in any form has caused the recovery of any patient However, on the basis of the ease with which myelin degeneration can be produced in the nerves of chickens fed on polished rice, it would seem advisable to give the whole vitamin B complex in addition to a normal diet to patients in whom neurones have been injured

DR DuBois Have you gone as high in the dose as Dr Jolliffe has indicated?

DR DUNNING I think the highest dose we have ever given of thiamin chloride was 100 mg per day It happened to be in a patient who made a complete recovery

DR DuBois These were patients rather more severely deficient I gather than Dr Jolliffe's standard type?

DR DUNNING Definitely more severe, they required hospitalization

DR DuBois What has been your observation, Dr Jolliffe?

DR JOLLIFFE We do not feel that we can test the therapeutic response in polyneuropathies other than in the "standard" group—that is, in patients with a mild polyneuritis—for the simple reason that those with more advanced polyneuritis may have relatively irreversible anatomic changes We have taken, for demonstration, patients that no one thought would ever make a satisfactory recovery—patients with bilateral foot drop and paresis of two or more extremities Treatment with a good diet plus vitamin B complex and large amounts of thiamin, usually 20 mg but often as high as 50 mg twice a day, usually leads to improvement sufficient for economic rehabilitation This type of evidence only suggests that thiamin is of value, though I feel it definitely is Patients with this degree of involvement are so infrequent that we cannot get groups of comparative severity with which to compare one with the other We only have the clinical impressions that large doses of thiamin and B complex, in addition to a good diet, are of value in these advanced cases

DR RICHARDSON Do you have any laboratory aid in diagnosis?

DR JOLLIFFE We run thiamin and co-carboxylase blood determinations We also use the pyruvic acid tolerance curve All are

still experimental and interpretation is difficult

Summary

DR. HARRY GOLD The complex subject of the uses of the vitamin B fractions has been greatly simplified by the discussion in the conference this morning. Our knowledge of clinical B deficiencies has advanced rapidly since the discovery of the pure principles of the B complex. One may now recognize fairly pure nicotinic acid, riboflavin, and thiamin deficiency, although all three deficiencies may exist in one and the same individual. The chief symptoms of ariboflavinosis are cheilitis, fissures at the angles of the mouth and dermatitis of the nasolabial folds, of nicotinic acid deficiency, stomatitis, diarrhea, dermatitis, and certain neurotic manifestations, and of thiamin deficiency, peripheral neuropathies and a neurasthenic syndrome. There are as yet no laboratory guides to the diagnosis of B deficiencies which are sufficiently satisfactory for general use. Two principles regarding the use of vitamins were emphasized: (1) to err on the side of giving larger doses rather than smaller ones, especially in the treatment of deficiency diseases, (2) to use a good diet,

since it contains factors, as yet unknown, which are effective in controlling deficiency diseases and which cannot be supplied by either B concentrates or by combinations of the pure vitamins. An interesting example was cited of a patient who suffered with a nutritional defect in whom all the specific manifestations of the known B factors were abolished, but the patient remained in a state of ill health. She recovered rapidly only after an abundant mixed diet was supplied. A good diet is one that contains meat, including liver and pork, fresh vegetables, orange juice, whole wheat bread, whole grain cereals, butter, milk, cream, and eggs. It should contain not less than 2 mg of thiamin, 3 mg of riboflavin, and 20 mg of nicotinic acid, and preferably somewhat higher amounts of all of these.

After a patient has been cured of a vitamin B deficiency disease by means of the pure vitamins, his state of improved health is maintained by a good diet and daily amounts of B complex in some such form as brewer's yeast. Interesting considerations regarding factors that have not yet been identified, the interaction of vitamins, and their mode of action were discussed.

CLASSES IN HEALTH AND HYGIENE

Classes in health and hygiene for men were recently held at the Fifth Avenue High School, Pittsburgh, on six Monday evenings. The classes began on March 24. They were held from 7 to 8 o'clock, sponsored by the Allegheny County Medical Society in conjunction with the Pittsburgh public schools. The speakers were members of the society, furnished through its Bureau of Medical Information.

The men eligible to attend were those employed in service merchandising, retail or wholesale, hotels, restaurants, and amusements.

In these six talks the subjects were those of interest and importance to the layman. He was given authoritative medical information on the aspects of health and disease uppermost in his mind.

AS SPOKEN

"American students are not so numerous in England now. A few remain, however, and make their contribution to life in the blitzkrieg. Quaint phraseology and self-confidence are as characteristic of the New World as the Englishman's Norfolk jacket and protruding teeth are symbolic of the Old. In a tutorial class in pharmacology the other day, I asked an American to distinguish between a vermicide and a vermifuge. The definition of a vermicide offered no difficulty, but he faltered over vermifuge. Finally, mobilizing all his histrionic resources while his colleagues listened with growing amusement, he said emphatically: 'Well, when the worm spots the anthelmintic coming through the pylorus, I guess it just beats it to the rectum.'"
—Picked from the Lancet by the J.A.M.A.

Attention

Those who asked for reprints or other information as to the scientific exhibit on brucellosis are asked to communicate with Lieutenant Commander Harold J. Harris at the Brooklyn Naval Hospital, Brooklyn, New York, or at Westport, New York, by mail. Dr. Harris had a notebook in which the names of all those who made such requests were written, but in the dismantling of the exhibit the notebook was lost.

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HOUSE OF DELEGATES MINUTES OF THE ANNUAL MEETING

[Continued from page 1304 of June 15 issue]

April 28 and 29, 1941

Evening Session

Monday, April 28, 1941

The session reconvened at eight o'clock.

SPEAKER BAUER The House will be in order

Is there a quorum present, Mr Secretary?

SECRETARY IRVING There is

The Chair recognizes Dr Van Kleeck, Chairman of the Reference Committee on Report of the Council, Part VI, Medical Relief

64 Report of the Reference Committee on the Report of the Council—Part VI—Medical Relief (Section 81)

DR. LOUIS A. VAN KLEECK, *Nassau* The special subcommittee has accomplished what we have strived for years to effect. The plan, which the committee has adopted and the State Department of Social Welfare and the Council have approved, should receive the endorsement and approval of the House of Delegates, and the success of its operation depends upon the co-operation of every member of this Society.

To understand fully the importance of the plan, the reference committee wishes to call your attention to the Report of the Council in 1939 on Medical Relief. The Committee on Public Relations and Economics recommended at that time

- 1 Decentralization of welfare care,
- 2 Local professional advisory committees and/or local medical director, and
- 3 A fee schedule

After a meeting of welfare officers called by the Commissioner of Welfare on November 26, 1938, the Social Welfare Department advised the committee that the local welfare officers were not in favor of adopting the proposals of this Society.

The Reference Committee in 1940 reporting on Part II of the Council's Report on Medical Relief recommended to the House of Delegates that a special subcommittee of the Committee on Public Relations be established. This recommendation was carried out, and the following committee was formed:

E. Christopher Wood, M.D., *Chairman*

Carleton E. Wertz, M.D.

F. Leslie Sullivan, M.D.

Your reference committee is not disposed to alter or make recommendations which might in any way change the purpose or accomplishments of the plan submitted in the report. We do, however, wish to bring out certain points of the plan for thorough understanding and emphasis.

I quote now from the Joint Statement from the New York State Department of Social Welfare and the Medical Society of the State of New York:

" 'Principles and Discussion' represents the position taken by the State Department of

Social Welfare (under the Public Welfare Law) in regard to the various medical welfare policies adopted by the House of Delegates of the Medical Society of the State of New York during the past several years. Also included is an outline of Basic Principles of a New Medical Plan, approved by the State Department of Social Welfare, which is now being put into effect by the State Department in various localities. This is the Medical Plan referred to in the discussion below.

"Under the Public Welfare Law, local welfare officials are empowered to provide medical care on a salary basis or on a fee-for-service basis, consequently the indigent patient may not have or may have the right of free choice of physician according to the procedure adopted in any given locality. In addition, if they are to receive reimbursement from the state, their local welfare departments must be operated under the Rules and Regulations promulgated by the State Department of Social Welfare.

Any platform adopted by the State Medical Society, or by local medical groups, has no force whatever in effecting the conduct of medical relief work unless agreement can be reached with the state and local departments of welfare concerning this platform. Such agreements, if reached, are essentially mutual understandings and in no sense abrogate any portion of the Public Welfare Law. It should be noted further that the local welfare official is legally responsible, to his community and to the state, for the entire conduct of his department and he can neither delegate nor share this responsibility. He can seek and accept advice or suggestions concerning medical problems and procedures, but in the final analysis responsibility for all decisions rests solely on him.

"The State Department of Social Welfare agrees that there are advantages in the establishment of a medical advisory committee in each public welfare district and agrees to advocate the use of these committees and to assist in a general determination of their functions. Under the Public Welfare Law, these committees can advise and suggest, and can recommend policies for supervision and administration, but the responsibility for all acts and decisions must remain—and we feel should remain—in the hands of the local welfare official. State reimbursement on a local fee schedule is conditioned upon the State Department's approval of this schedule as being reasonable for the particular community rather than on the basis of a statewide fee schedule. Abolition of the system wherein medical questions are submitted to the State Department for decision is brought about automatically through the introduction of the new medical plan and the 'prior authorization' system is transferred to the local agency under local professional control.

"The attention of the local public welfare officials is called to the value of securing the full cooperation of his county medical society in the development of an approved local medical program and in the selection of a competent physician to act as Medical Director or Medical Consultant on his staff. The State Department recommends that he request the medical society covering his public welfare district to submit a list of physicians recommended by the society as suitable for such appointment and meeting the requirements established by the State Board of Social Welfare, or request the medical society to comment upon the qualifications and professional standing of a licensed physician selected by him as a candidate for appointment as Medical Director or Medical Consultant. Attention is called to the value of an active professional advisory committee in providing the local public welfare official with professional advice in the development and revision of the policies included in the approved local medical program, in the arbitration and discipline of professional problems and the operation of survey boards to review and plan proper medical care for persons suffering from prolonged or disabling illnesses or presenting special or unusual medical needs. The medical advisory committee should be appointed from a list nominated for the purpose by the county medical society.

"In conclusion, it should again be emphasized that under the law, the welfare patient is not guaranteed the right to choose his own physician, and the physician is not guaranteed the right to treat his own patient with a commitment of payment for his services. But, if the physicians of a given locality can agree among themselves to formulate and to participate seriously in a plan adapted to the medical needs and medical and economic resources of their community, the Public Welfare Law and the regulations of the State Department of Social Welfare make it possible for the indigent patient to choose his own physician and the physician to treat his own patients with payment for his services supplied from public funds. Although the local public welfare official is responsible for providing necessary medical care for indigent persons, the determination as to the medical needs is now by law 'made with the advice of a physician'."

To quote again from the report, headed "Local Medical Care Plan—Basic Principles"

"Recognition by public officials, physicians, hospital administrators, and all other professional personnel, of the Public Welfare Commissioner's legal responsibility and authority, within existing appropriations, to provide medical care for all persons, under its care, and for such persons otherwise able to maintain themselves, who are unable to secure necessary medical care."

This has been the law, but is inoperative.

"The establishment of a central unit, with administrative responsibility for the authorization and issuance of medical care, and directed by a full-time or part-time physician, who, in the discretion of public welfare official,

may be supported by a Medical Advisory Committee, follows recognition of the fact that sound medical program administration requires

- (a) Professional medical judgment and controls such as can be given only by a physician
- (b) Simplified and smoothly operating procedures to effect the referral of patients to physicians for treatment
- (c) A clearly defined plan for keeping the social service staff informed of health, medical, and medical social treatment needs of their clients
- (d) An accounting system

"Whenever feasible, the same plan for providing medical care shall be used for all categories of public assistance in order to obviate confusion to the recipient and medical attendant, and to aid in the simplification of administrative and accounting procedures."

Now, to quote from the Principles and Discussion, the first subdivision thereof, "The Medical Aspects of Medical Relief Should Be Supervised by the Medical Profession"

"It was agreed, however, that an 'advisory medical committee' should be established in each public welfare district and that this committee should act in an advisory capacity only. It was agreed also that no ruling on a medical question should be made by a local welfare commissioner in the absence of a definite recommendation by the medical director or the medical advisory committee. The State Department of Social Welfare agrees further to advocate the use of these committees, and the exact manner in which they should function will be outlined in a document to be prepared jointly by the Department and the State Medical Society."

This was recommended two years ago, but not agreed to by the Department of Social Welfare.

Under the second subdivision thereof, "All Physicians Should Be Encouraged to Participate in the Service," I quote

"It was agreed that the State Department's requirement, that a medical director or consultant be engaged wherever the plan is put in operation, would reduce lay interference in 'medical determination' to a minimum. It was pointed out, however, that the welfare commissioner is a layman who has sworn responsibilities which he may not renounce—including the authorization of welfare commitments—and that, while it is agreed that in medical matters he should have the advice and guidance of a medical director and/or committee of professional men medically competent, the responsibilities for decision must remain squarely on the shoulders of the commissioner and may in no sense be eliminated or considered as 'lay interference'."

Under the third subdivision thereof, "Utmost Decentralization of Control in Medical Matters," I quote

"Local supervising physicians or society boards should be able to rule on use of special drugs, use of consultants and specialists or any

other special treatment, without reference of these questions to State Department of Social Welfare

"Local welfare officers should have full authority to order special drugs and authorize special modes of therapy, with assurance of reimbursement to themselves, if approved by local supervising physician or society board"

Under the discussion of this third subdivision, there appears this paragraph

"Abolition of the system wherein medical questions are submitted to the State Department for decision is brought about automatically through introduction of the medical plan. It was pointed out that wherever the plan is installed and approved by the State Department the 'prior authorization' system is transferred to the local agency under local professional control. Under the new system professional members of the State Department staff will periodically examine the records of local agencies to determine whether or not the agency is adhering to the conditions established by themselves in their own plan"

This will obviate the delays and red tape heretofore interfering with adequate medical care

Under the fourth subdivision, "Free Choice of Physician Should Be Guaranteed Subject to Protective Limitations," authorization for medical care should be issued by local welfare officer and when possible on a fee-for-service basis

Under the fifth subdivision, "Contract Practice for Medical Relief Should Be Disapproved," the present system does not stop abuse of contract practice. The plan should, therefore, be given an opportunity of demonstrating the free choice of physician and fee-for-service basis, which is much superior to contract practice. The Local Welfare Board should be informed of the contrast between the two systems. It is the responsibility of the local medical profession to see that the system is changed by demonstrating the superiority of the fee-for-service basis. However, in no place in the state is there an adequate method of determining the total costs

I quote under the "Discussion"

"The Department cannot agree to this principle for the reasons stated under Principle No 4. It is quite obvious that if the Department finds the quality of care in a local community affected by and to the extent enumerated in Items 1, 2, and 3, under Principle No 5, and these conditions traceable to the use of salary or contract doctors, the Department would in its normal supervisory role insist upon a change in the system"

Under the sixth subdivision, "Clinics Should Not Be Exploited to Avoid Payment of Fees For Service. They Should Be Used When Medically Desirable," I quote from the discussion

"With the establishment of the local medical plan, the Department has no choice but to insist that existing clinics and other medical sources be used to the fullest, reasonable extent. The department does not, however, insist upon the use of such resources where they fail to meet the purpose for which they

were established. In determining jointly with the local welfare agency the extent to which clinics and other resources shall be used, the Department takes into consideration the quality of service, the scope of service, the physical facilities, and the ability of the clinic to handle qualitatively, as well as quantitatively, the number of cases to be referred by the local welfare agency"

This is a concession. Heretofore this has been obligatory, regardless of the capacity or facilities of the clinic

Under the seventh subdivision, "Provisions Should Be Made to Enable Needed Medical Care to Be Furnished for Indigent and Near Indigent Families Not Otherwise Eligible for Relief," medical indigency should be defined and placed in operation.

I move the acceptance of the first part of the report

The motion was seconded

SPEAKER BAUER This report summarizes very largely the report already printed in the Annual Reports which have been distributed to each of you. This summary is given to you in detail for your information, and the reference committee recommends the adoption of the principles which have already been approved by the Subcommittee on Medical Relief and by the Council. That is the substance of the recommendation of the committee. Is there any discussion on that portion of the report?

The question was called for, and the motion was put to a vote, and was unanimously carried.

DR VAN KLEECK As to a subsequent report, pertaining to direct payment to the Aged, the Blind, and for Dependent Children, again I quote from a joint statement by Christopher Wood, M.D., Chairman, Subcommittee on Medical Relief, and H. Jackson Davis, M.D., Chief Medical Officer, State Department of Social Welfare

"In the welfare districts in the state where physicians have heretofore been paid by the Welfare Department on a fee-for-service basis for authorized medical care given to persons receiving Old Age Assistance and Assistance to the Blind, a change effective April 1, 1941, has been made in the method of payment—so that such persons will pay physicians directly for such medical care given during the preceding month. This method has been used for some time in administering Aid for Dependent Children

"It was agreed by the representatives of the Medical Profession and the welfare officials that the installation of this plan would require careful preliminary interpretation and cooperative planning in each community"

The reference committee realizes that no definite recommendation can be taken at this time and feels that experience and data should be obtained.

Information has gone around the state that the State Medical Society "accepted" this change in system of payment for authorized medical care in these categories. That word is not accurate in this connection. The State Society neither *accepted* nor *rejected*, neither *approved* nor *disapproved*, but took the position

that it would go along with the State Department of Welfare to watch them after the change is made. The State Society representatives were very conscious that experience might be unsatisfactory, but until actual data could be obtained they did not feel that they could take a definite position for or against.

The reference committee believes that the Special Subcommittee on Medical Relief has accomplished many things that the State Society has striven for, for years. Their work is to be continued, and your reference committee recommends that the principles and policies agreed to by the Council and Department of Social Welfare be approved by this House of Delegates and that an opportunity be given to see how they work when in actual operation.

I move the adoption of this report, which is signed by myself as *chairman*, Samuel M. Allerton, *Broome*, George A. Burgin, *Herkimer*, W. Bayard Long, *New York*, and Charles A. Prudhon, *Jefferson*.

We do not make a recommendation on that subsequent report.

SPEAKER BAUER On the subsequent report relative to aid to the blind and old age security, what the report of the reference committee simmers down to is that the present method which has been adopted by the State Department of Social Welfare shall be tried out for a limited period in order to accumulate experience and data relative to it, and that no specific action for or against it should be taken at this time. Is that true?

DR. VAN KLEECK Yes, that in substance is what it amounts to.

SPEAKER BAUER Is there any discussion on that?

DR. CHARLES F. MCCARTY, *Kings* Kings County has made a definite recommendation that has been referred to one of the reference committees on this subject, and they will later make their report.

DR. VAN KLEECK Yes, that reference committee has not yet reported.

SPEAKER BAUER If that reference committee has a subject to report on which is much the same as this, I think it would be better to suspend action on this portion of the report until after that committee has reported so they can be acted on jointly, and unless there is objection by the House the adoption of this section of the report will be held in abeyance until after the other reference committee reports.

DR. VAN KLEECK To clear the atmosphere slightly, the reference committee now reporting realizes that no definite action can be taken on this at this time. We do not make a recommendation, but what we are making in effect is a motion to approve the report of the Subcommittee on Medical Relief.

SPEAKER BAUER The point I believe that Dr. McCarty made is that the other reference committee might have a definite recommendation which would conflict with that.

DR. VAN KLEECK Very well, I am satisfied to hold up this part of it until they make their report.

SPEAKER BAUER I think it would be better to suspend action on this until after we hear from the other reference committee, and then we will call on you again for the adoption of the balance of your report.

65 Presentation of Dr Martin B Tinker to the House

SPEAKER BAUER At this time before we proceed further there is one matter I want to call to your attention. There is a gentleman in the House who is a life member of this House, and who comes very often to our meetings, but hardly ever gets on his feet so that we have an opportunity to see him. He is celebrating an anniversary. He was President of the Medical Society of the State of New York twenty-five years ago, and I do not think that should go unnoticed. Therefore, I am going to ask Dr. Martin B. Tinker to arise.

The delegates arose and applauded. **DR. MARTIN B. TINKER**, *Tompkins*. Mr. Chairman and Members of the House of Delegates, you all know that I am not a good speaker, but it would be unfair to let this opportunity pass without saying how much I appreciate the honor that was done by making me president of this great Society. It is a great responsibility too, as well as an honor. It has been a great pleasure to take a hand in the work of this Society over the years. There are so many of the men here now who worked with me year after year on the various committees of our Society. As I look back over the years, it seems to me that there has been very definite progress made.

It is a great pleasure, too, to see your friends and neighbors shifted along. From a child in the chair, Jim Flynn has become your president, further along the line, too, is our distinguished Cornell alumnus, Dr. Van Etten, then further along is Arthur Booth, and from my friends up in Buffalo I see Harry Trick. These men have all been presidents of our Society and have carried along the work. I did not mention Johnson over here, of Batavia. He is one of my oldest and best friends.

There is also the pleasure of seeing some of my former students. You get to feeling you are almost a grandfather when one of your boys, like Floyd Winslow, has become president of the State Medical Society, and another one of your pupils, like Van Kleeck, presents such a very good report as he has just presented.

So many of you, too, have sent me your friends and even your wives and children, which is a different sort of an honor and a different sort of responsibility. (Applause)

SPEAKER BAUER Thank you, Dr. Tinker!

66 Reconsideration of Disposition of Resolution Pertaining to Leaves of Absence for Officers in Military Service (Sections 28, 79)

SPEAKER BAUER Gentlemen, there was a resolution introduced in the House by Dr. West, for the First District Branch, which pertained to leaves of absence for officers of the State Society and District Branches who were in military service, and the Chair ruled this was an amendment to the Bylaws and could not properly be considered at this time. The Chair is still of the opinion that in its present form that is true, but it is realized that this is an urgent matter, and if we wait a year on it, it might make it entirely useless, so the Chair is going to refer this resolution to a reference committee, and will refer it to Dr. Masterson's Committee on New

Business C, with instructions that they call in the legal counsel, Mr Brosnan, and Mr Clearwater, the Society's attorney, to see whether or not by redrawing the resolution some way could be found to bring it within the framework of the Bylaws so that some action could be taken at this time

DR J LEWIS AMSTER, Bronx Point of information I think we could take care of this matter if we referred this resolution directly to this House of Delegates. By unanimous consent of the House I believe we could act on this resolution.

SPEAKER BAUER If it is against the Bylaws you cannot act on it even by unanimous consent of the House. However, it is possible that a way may be found, perhaps by a little rewording of the resolution, for the reference committee to act on it in the first instance, and it will come before the House as soon as the reference committee reports on it, but anything that is in violation of the Bylaws cannot be done even by unanimous consent

67. Report of Reference Committee on the Reports of the Secretary and District Branches

Secretary DR. STEPHEN R. MONTEITH, Rockland Your Reference Committee on the Report of the Secretary wishes to comment on the terse, concise nature of Dr Irving's report. We feel that, while this report must of nature be brief, it gives only a passing picture of the multitudinous activities and accomplishments of the Secretary and of the other departments under his able supervision as General Manager of the Society

Membership—Again your committee feels that it is necessary to comment on the increase in membership of the Medical Society of the State of New York. During the year 1940, a net gain of 624 members was made as compared with a gain of 608 in the year 1939. While this increase in the number of practicing physicians in the State of New York is not as great as that shown in the peak year of 1937, when 867 new members are shown, the total increase from 1935 through 1940 as shown by your Secretary's report reveals the alarming gain of 3,345 new physicians in practice in this state over this five-year period. We use the word "alarming" advisedly. Nowhere in the United States is the problem of the refugee physician or his close relative, the native-born graduate of foreign schools, more acute than in New York State.

Here, as shown by Dr Lawrence's comprehensive analyses of 1939, the ratio of physician to population at that time was 1 to 576. Now the ratio, we believe, for the state as a whole has decreased to the amazing figure of 1 to 476. With the present needs of the military branches of the Government forces being supplied wholly by graduates of schools in the United States and Canada, does this situation not present an alarming picture?

We wish here only to emphasize matters being opened for discussion by other committees

New York Office—The foresight shown in the moving of the offices of the Society to its present midtown location has proved a boon to those to whom operation of the Society's business has been entrusted.

The Council Committee on "Office Adminis-

tration and Policies" has functioned adequately and effects of its work are shown in the revamping of the business side of production of the *Directory* and *JOURNAL*. Mr Dwight Anderson has aided greatly in this work and in other matters of advertisement and publicity

The Policy Committee has instituted "Office Study" of several matters, notably the filing system necessary for proper compilations of biographical records of physicians and data used in preparation of the *Directory*. An analysis of the setup for handling these matters was entrusted to J. K. Lasser & Co, experts in this field

While carrying out their recommendations has entailed certain equipment expenditures (referred to by Dr Kosmak in his additional report this morning) it is felt by those in charge that these expenditures will yield dividends in further expediting this necessary work.

No doubt the position analysis (report of which will soon be made) covering the duties and compensations of the office force will also prove helpful in preventing overlapping of effort

Your reference committee feels that the business-like way in which the Council and its committees have approached the technical administrative problems incident to effective operation of the General Manager's office deserves only words of commendation from the House of Delegates, and we feel sure that each member of our Society appreciates the invaluable work done by our Administrative Officers

The fact that the office of Dr Kaliski, Director of the Bureau of Workmen's Compensation, is housed with the general offices, has helped both Dr Kaliski and Dr Irving, as well as kept them at all times available to members of the Society

Council Bulletins—Your reference committee notes that some delays have been experienced in publication of the "Bulletins of Council Proceedings." However, we are satisfied that unless the urgency of vital work prevents, these bulletins will appear promptly as directed. Certainly, these bulletins will have a coordinating effect on the work of the county societies and it is to be hoped that their appearance will be regular in the future

Coordination of Activity—The General Manager's Office has demonstrated its effective organization most notably in the manner in which it has handled the urgent problem of Medical Preparedness

Your committee feels that the Council Committee on Medical Preparedness has done its job with commendable care and with a spirit of devoted service. No doubt much of the effectiveness of this work has been due to cooperation received from Dr Irving and his office force, and to them we wish to express our thanks. Much work remains to be done in this field.

We feel that Organized Medicine in New York State under the inspired leadership so far exhibited will not be found wanting in maintaining a concerted effort in the medical care and protection of both our armed and civilian population in this time of national emergency

I move the adoption of this portion of the report

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried

District Branches DR MONTEITH Your reference committee has noted with interest the reports of the several district branches. On the whole the attendance at the meetings held by these branches has been satisfactory, with one notable exception, the meeting of the Third District Branch. Due to confusion and delay in receiving the printed programs, notices of this meeting were sent out very late. This fact, no doubt, kept down the number of members present.

We wish to commend the officers of the First District Branch on their continuation of the custom of the past few years in conducting "clinic days" as part of their activity.

Your committee feels that the recommendations made by the House of Delegates last year tending toward development of the district branches into more cohesive organizations be continued. A new setup of each of these branches is desirable but your reference committee feels that for the present this matter had best be left to the judgment of the Council for its development.

I move the adoption of this portion of the report.

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried.

DR. MONTEITH Now I move the report of the committee as a whole.

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried.

68 District Branch Constitution and Bylaws (Section 52)

SPEAKER BAUER At this point, you will recall this afternoon that Dr West asked a question relative to the revision of the constitution and bylaws of the district branches, and the Chair answered that question and said if there was anything further he would consult Dr Lawrence and have him make a statement. What the Chair said was correct, but did not go quite far enough. There was another reason for the delay in the action on the constitution and bylaws of the district branches.

Dr Lawrence, will you just briefly add what I did not state this afternoon on this question so that Dr West and the other members of the House may be familiar as to why there has been delay in this matter?

EXECUTIVE OFFICER LAWRENCE The problem of the district branches is complicated in this way that heretofore the annual meetings have been primarily scientific meetings. Recently the activity of the Committee on Public Health and Medical Education has been extended in a much more satisfactory way than the district branches could go in the scientific field, so that there is an overlapping, with the result that it has been difficult for the district branches to prepare a scientific program with entirely new material.

The suggestion has been made—and it was placed before the Council—that the district branch program might be developed into a program of this character, and it is proposed to be tried in the Third District this year, that is, that the president, secretary, and chairmen of the various component county societies be invited

to attend the annual meeting, and at the same time the president, secretary, and chairmen of standing committees of the State Society be at the meeting, with the idea that the chairmen of the state committees and the county committees may have an interchange with regard to activities during the coming year and with regard to problems that may present themselves in the county societies. In this way we believe we can probably bring the state program to the county society in a way that it seems we should or an improvement over the present method at any rate. This, of course, will not include any scientific papers whatever. The Council thought that it would be well to have a trial of this. If it works out, we can recommend it for other district branches, but if it does not work out, we will not spoil too much at one time. I think that is what we had in mind.

SPEAKER BAUER Thank you, Dr Lawrence! I think that is purely informative. Does that answer your question, Dr West?

DR. THEODORE WEST, *First District Branch* Could I have the floor to make a few rebuttal remarks?

SPEAKER BAUER Yes, you may, Dr West, but it is not exactly rebuttal inasmuch as there is nothing before the House. It is purely a matter of information.

DR. WEST Perhaps I should say in explanation rather than in rebuttal, but never mind, the spirit is there if the words are bad.

It struck me when I got into the First District Branch to finish out the term of my predecessor that the district branch was organized about like nothing at all. There were no bylaws, there was no constitution. I did not know what I was supposed to do, what I was supposed to do it with, or why I was supposed to do it.

Carrying on the work of my predecessor, we got the scientific meeting going in the same way as he had started it, with great success, but at that time the economic condition throughout our district was getting rather acute—it still is acute, and I don't think it is getting any less acute—and the thing that struck me at that time was that the men in Rockland, and the men in Putnam, and the men in Dutchess, and the men in Staten Island, and all the rest of the counties in the district did not have the slightest conception of what problems confronted the other counties.

It seemed to me that a round-table discussion by the men who knew the problems of their own county throughout the counties of the district would bring the various counties of the district closer together, that they would find their problems were largely the same, and by working together they could do better work in trying to change bad conditions and get difficult situations corrected.

The present plan of having a meeting once a year or so with the State Society bringing its problems to the counties is splendid. I thoroughly approve of it, but I think in addition to that we need the district branches to know the problems of the various counties so that they can take them to the State Society.

That is where I think the present system may be a little weak. Without a constitution, without any bylaws, without any form of working, your district branch cannot function because it has nothing to function with or no plan to carry on.

For that reason I should like to ask the Council to speed up the work and to try, if possible, to get some sort of constitution to them to work out this plan, which in the First District is really working out, I believe, to the advantage not alone of the district and component counties in the district but which I believe redounds to the benefit of the state.

I have taken a tremendous interest in this, and ask that the work be speeded up (Applause)

69 Report of Reference Committee on New Business B—Women Physicians for the Medical Reserve Corps of the United States Army and Navy

(Section 19)

DR. PETER J. DiNATALE, *Genesee* Mr Speaker and members of the House of Delegates, the Reference Committee on New Business B begs to submit the following report

On the resolution presented by the Medical Society of the County of New York, reading

"WHEREAS, the United States of America is at present engaged in a vast preparedness program which includes a listing of members in the Medical Reserve Corps available for active service, and

"WHEREAS there are approximately 8,000 women physicians and surgeons in the United States Women physicians and surgeons of America demonstrated their fitness for war-time service during the first World War when they financed units and staffed hospitals with well-trained officers, in France and Serbia, and

"WHEREAS, the United States Government has to date taken no cognizance of these women physicians in time of national emergency, and

"WHEREAS, the Government has already granted women nurses Army rating with proper rank, pay, and war-risk insurance, therefore be it

"Resolved, that the Medical Society of the State of New York recommend that the women physicians and surgeons of America be made eligible for the Medical Reserve Corps of the United States Army and Navy, and be granted full privileges thereof, and be it further

"Resolved, that the Medical Society of the State of New York instruct their delegates to the House of Delegates of the American Medical Association, that this request be laid before the House of Delegates of the American Medical Association for consideration" (Applause)

Your reference committee feels that women physicians have a place in our defense program and can be of great value in certain fields of service, and should be called upon for rendering service as they are capable of

They should have all the benefits, such as proper rank, pay, and war-risk insurance, as are allotted to other physicians

Your committee approves the resolution and moves its adoption (Applause)

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried

DR. EMILY D. BARRINGER, *New York* May the women physicians thank you all very much

indeed There are a group of them meeting in this building this evening and I know they would send up their unanimous thanks if they knew of this action (Applause)

70 Report of Reference Committee on New Business B—Extending Invitation to American Medical Association to Hold Its 1944 Annual Meeting in New York City

(Section 29)

DR. PETER J. DiNATALE, *Genesee* On the resolution submitted by the Medical Society of the County of New York by Dr. Hellman, reading

"WHEREAS, the 1940 Annual Meeting of the American Medical Association was a great success in New York City, therefore be it

"Resolved, that the Medical Society of the State of New York extend an invitation to the American Medical Association to hold its 1944 Annual Meeting in New York City,"

Your committee approves that the meeting of the American Medical Association be held in 1944 in New York City, providing that the New York State Medical Society meeting is held in some other city, because we feel that attendance at the New York State Medical Society meeting is reduced when both meetings are held the same year in New York City

I move the adoption of the report of the reference committee.

The motion was seconded

SPEAKER BAUER The reference committee's report is rather predicated on something that has not yet been decided. I wonder if the committee can make a little more concrete recommendation.

DR. DiNATALE What meeting has not been decided upon?

SPEAKER BAUER Where the meeting of the Medical Society of the State of New York will be held in 1944 has not been decided on. True, we usually go to New York City in alternate years, so in all probability in 1944 the meeting would be held in New York City. The point of the resolution I think could be brought out if the committee extended an invitation for a future year, or if they recommended definitely that the invitation be extended and that the meeting of the State Society be not held in New York that year. I think you have to have a definite recommendation, not predicated on something that has not yet been decided

DR. ALFRED M. HELLMAN, *New York* As the maker of that resolution may I amend it to read 1945? It is customary to hold the State Meeting every other year in New York City, and that would bring it to New York City in 1944

SPEAKER BAUER The only point about that amendment would be this, Dr. Hellman. There would be no point in presenting such a request to the House of Delegates of the American Medical Association for 1945, as they select the meeting place three years ahead, and the 1944 meeting place would be the one selected this year

DR. HELLMAN I withdraw my amendment

SPEAKER BAUER As I understand it, the way the resolution now reads is that the State Society should extend an invitation to the American Medical Association to meet in New York City in 1944?

DR DiNATALE Right!

SPEAKER BAUER And that the State Society meeting should not be held in New York City at that time, is that right?

DR. DiNATALE That was the feeling of the committee. In view of the experience last year, we thought the attendance at the State Meeting was held off because a lot of the doctors waited for the American Medical Association meeting in New York City. We wondered whether it was a wise policy to hold the two meetings in the same year in the same city.

DR. HARRY ARANOW, Bronx Why not make the invitation to the American Medical Association, and then if it is accepted the State Society will decide for itself whether it wants to hold its meeting in New York that year or not?

SPEAKER BAUER You suggest then, I take it, that this motion be separated and that it be amended to read that the invitation be extended to the American Medical Association for 1944, without any strings attached to it.

DR. ARANOW Yes

SPEAKER BAUER Do you make that as a motion?

DR. ARANOW I do

The amendment was seconded.

SPEAKER BAUER The question then is on the amendment to the committee's report, that is, that the matter of the 1944 New York State Society meeting place be eliminated, and that an invitation be extended to the American Medical Association to meet in New York City in 1944.

Is there any discussion on the amendment?

DR. JOHN J. BUETTNER, Onondaga Undoubtedly, the attendance last year was influenced by the fact that the World's Fair was being held in New York. Possibly with no World's Fair being present in 1944, it may make a difference.

The question was called for on the amendment, and the motion was put to a vote, and the amendment was unanimously carried.

SPEAKER BAUER You now have before you the amended motion for adoption.

The question was called for, and the motion was put to a vote, and the amended motion was unanimously carried.

71 Report of Reference Committee on New Business B—Corporate Practice of Medicine

(Section 28)

DR. PETER J. DiNATALE, Genesee On the resolution presented by the Medical Society of the County of Westchester on the Corporate Practice of Medicine, reading

"WHEREAS, the practice of medicine or of any other profession by a corporation is advisedly prohibited by most of the States of the Union, and

"WHEREAS, New York State now authorizes the formation of nonprofit corporations in the field of voluntary health and medical expense insurance, a development which may ultimately be extended to the authorization of the virtual practice of medicine by commercial as well as nonprofit corporations, and

"WHEREAS, proponents of radical innovations in the practice of medicine are known to be seeking means of breaking down or of circumventing present legal obstacles to the out-

right or disguised practice of medicine by corporations, therefore be it

"Resolved, that the House of Delegates request the Council to designate a committee to study the present laws and precedents in New York State relating to the corporate practice of medicine, this committee to be charged with the continuing duty of studying and periodically reporting to the House of Delegates and to the Society its findings and recommendations, with a view to preventing the destruction or circumvention of legal safeguards against corporate practice in New York State,"

your committee feels that the Council and duly elected officers should at all times be cognizant of any impending legislation and be on the alert to study the same

Your committee approves the resolution and moves its adoption.

The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.

72 Report of Reference Committee on New Business B—Medical Relief—Ambulatory Care

(Section 54)

DR. PETER J. DiNATALE, Genesee On the resolution introduced by the Bronx County Medical Society on the Care of the Indigent, reading

"WHEREAS, the indigent of the City of New York are provided with medical care through a plan devised by the Medical and Nursing Service for Home Care, and

"WHEREAS, these same indigents require ambulatory care for which no provision is made, and

"WHEREAS, the physicians of the City of New York are supplying this ambulatory care without remuneration, be it

"Resolved, that the Bronx County Medical Society recommend that provisions be made for the ambulatory care of indigent patients in the office of the private practitioners and that the physicians be adequately remunerated for this care, and be it further

"Resolved, that these resolutions be introduced at the House of Delegates at the meeting of the New York State Medical Society in April, 1941,"

the Reference Committee on Business B approves the resolution as read. I so move

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried

73 Report of Reference Committee on New Business B—Medical Relief—Direct Payment of Medical Fees to the Aged, the Blind, and Dependent Children

(Sections 22, 23, 33)

DR. PETER J. DiNATALE, Genesee In regard to the resolutions as proposed by the Medical Society of the County of Kings, reading

"WHEREAS, under existing laws, it is the duty of the State to provide medical care for those persons who are unable to provide this care for themselves, and

"WHEREAS, the cost of medical care is var-

able and, at the present time, cannot be estimated in advance, and

"WHEREAS, under the Social Security Act payments for assistance in categories for which grants are given by the Federal Government, such as the aged, the blind and dependent children, can be made only to the recipient of this assistance, and

"WHEREAS, under this ruling physicians treating persons receiving old age assistance, aid to the blind or aid to dependent children can no longer be paid directly by the local welfare organizations, and

"WHEREAS, physicians, nurses, appliance dealers, etc., have no accurate knowledge of when persons in these categories receive checks to pay for medical services which physicians and others have given them, and

"WHEREAS, this tends to cause additional hardship to physicians and others by either requiring them to go to the patient's home, possibly several times to collect their fee, or to treat these patients without just recompense, and

"WHEREAS, we realize that the Subcommittee on Medical Relief of the State Medical Society, the New York State Department of Social Welfare, and the New York City Department of Welfare feel that persons rendering medical care of New York State should be paid directly but that the State could not sacrifice approximately \$900,000 per year in Federal grants for medical care which they must sacrifice under this provision of the Social Security Act if the monies were paid to other than the recipients-of-aid in these categories, therefore be it

"Resolved, that the Medical Society of the State of New York, through its Delegates to the American Medical Association, request that the American Medical Association have legislation initiated to provide a change in the Social Security Act so that persons rendering medical care to recipients-of-aid from any government agency may be paid directly by that agency,"

and the Medical Society of the County of New York, reading

"WHEREAS, after April 1, 1941, checks from the Department of Welfare of the State of New York (Q V Form M med 383 b) for the Medical Care of those patients entitled to Old Age Assistance and Blind Assistance will be issued directly to the recipients of the care and not to the doctors rendering it, and

"WHEREAS, this forces the physician to collect these fees from indigent people who may be unreliable, therefore be it

"Resolved, that the Medical Society of the State of New York go on record as being opposed to the proposed change in method of payment, and that the Society request the Department of Welfare to continue its former method of paying these physicians directly,"

and we have two letters from the Medical Society of Broome County and from the Medical Society of Wyoming County on the same subject, which strictly speaking are not resolutions but are merely informative, your reference committee has taken the following stand

Your committee feels that these resolutions

are in the main identical, and that they both are in contradiction to the study and plans evolved by the joint committees on Medical Relief of the Medical Society of the State of New York and the New York State Department of Social Welfare

This committee feels after a study of the joint plans that the plan should be given a fair opportunity, of being put into effect

The joint plan states that the representatives of the Medical Society of the State of New York and the State Department of Social Welfare agreed that the medical features of the program would be subject to a careful review after six months of operation to determine

- 1 Whether or not the anticipated savings materialize,
- 2 Whether there are difficulties in the operation of the direct payment plan, which cause individual physicians or local welfare officers concern

Both the State Department of Social Welfare and the Medical Society of the State of New York will be glad to review and make every effort to solve any locally unresolved problems encountered in the installation and operation of the "Direct Payment Plan" if the specific problems, with identifying details, are submitted to the proper authorities

In view of the above joint statement in part, your reference committee feels that the resolution of the Medical Society of the County of New York and the Medical Society of the County of Kings be disapproved.

I move the adoption of the report of the reference committee

The motion was seconded.

DR. DiNATALE I believe that the reference committee of which Dr Van Kleeck is chairman has also considered this subject, and has a recommendation to make on it

SPEAKER BAUER That portion of his report has not been acted upon, but has been held in abeyance pending the report of this reference committee on that subject

DR. LOUIS A. VAN KLEECK The Reference Committee on the Report of the Council, Part VI, recommended that no action be taken

SPEAKER BAUER You have before you the recommendation of the reference committee which carries with it the disapproval of both the resolutions, and recommends that a trial be given to the plan which has been promulgated by the Department of Social Welfare in order to accumulate experience on that plan. It is in substance the same recommendation that Dr Van Kleeck made in his committee's report a short while ago, and which we held in abeyance pending the report on these resolutions and letters

DR. VAN KLEECK Yes

SPEAKER BAUER Is there any discussion on the Reference Committee on New Business B's report?

DR. LEO F. SCHIFF, Clinton It seems to me it would be a bad thing for this State Society to go on record as disapproving of these resolutions. There is another course which can be taken, and which would be consistent with the action taken on Dr Van Kleeck's report, and that would be to recommend that no action be taken on these resolutions. It would not be approving them and still it would not be disapproving them.

I would suggest to the committee chairman that if he cares to change his recommendation at this time it would be the simplest way out of it without recording ourselves as disapproving something which might leave us open to a misunderstanding later

DR. DiNATALE Your chairman will gladly accept the recommendation as made by Dr Schiff in regard to these resolutions

The seconder acquiesced in the suggestion

SPEAKER BAUER The motion before you, then, is that no action be taken on these resolutions at the present time, but that an opportunity be given to see how the plan already in operation will work out

Is there any further discussion?

DR. VAN KLEECK In regard to this, as I understand it, the trouble here is that if the payment is made by the welfare officer to the doctor there is an allocation of federal money that will be lost Am I right so far?

SPEAKER BAUER That is true

DR. VAN KLEECK The State of New York pays a large amount into this fund, and it gets back again money from the federal fund Am I right there?

SPEAKER BAUER A certain amount

DR. VAN KLEECK At any rate it pays a larger amount into this fund than other states do?

SPEAKER BAUER Yes

DR. VAN KLEECK My committee was afraid of that feature If we want the welfare officer to pay the doctor, then they lose \$900,000 a year in this state Am I right there?

SPEAKER BAUER That is correct

DR. VAN KLEECK Is Dr Christopher Wood here?

DR. MERWIN E. MARSLAND, *Westchester* No, he has been called out

DR. VAN KLEECK He made the statement when he appeared before the reference committee that physicians should give this plan a trial, that is, where the money is given to the blind or agent of the dependent children directly, and establish with them a sort of independent feeling that will encourage them to pay their own doctors' bills Furthermore, it is more or less conceded that they will do so

If the physician does not receive his pay for services rendered to those people he will confer a favor upon this special subcommittee of the Council if he will so inform his county society and they in turn communicate the poor results he has had to the subcommittee Do I make myself clear on that?

CHORUS Yes

DR. VAN KLEECK For statistical purposes, the special subcommittee, which is going to continue on with this work wishes the information as to whether or not the doctors are experiencing any difficulty in receiving payment direct from the people who receive the medical care I approve the recommendation of my committee, and Dr Schiff's suggestion, that no action be taken on these resolutions

SPEAKER BAUER Is there any further discussion?

DR. JAMES GREENOUGH, *Olsego* It seems to me that there is a difference between these two resolutions that have been presented to us

The first one is to ask the American Medical Association to ask the Federal Government to remove this stipulation. The second one is to ask the State Welfare Department to remove it

Would there be any reason why the delegates to the American Medical Association should not ask the Federal Government to remove this prerequisite?

SPEAKER BAUER Do you wish to make any motion in regard to it?

DR. GREENOUGH I should like to amend the recommendation of the reference committee so that it will approve the first resolution that was read instructing the delegates of the State Medical Society to the American Medical Association to institute proceedings there to change the action of the Federal Government in enforcing this requirement

The motion was seconded by several

SPEAKER BAUER It has been moved and seconded that the Report of the Reference Committee on New Business B be amended to the effect that the first resolution which was introduced—I believe by the County of Kings?

DR. DiNATALE Yes

SPEAKER BAUER To memorialize the American Medical Association to take steps to have the law changed so that the states would not be penalized if they made direct payments to the doctors, be approved, and that no action be taken on the other resolution

DR. DiNATALE The reference committee felt, in view of the fact that the plan as it had been worked out by the Subcommittee on Medical Relief of the Council in joint meeting with the State Welfare Department had had no opportunity to be tried out, to ask for a change without giving the plan a fair trial was not the proper thing to do

DR. DAVID J. KALISKI, *New York* I think there is some misapprehension about the stand of the State Medical Society and the local county societies on this proposal There was no hesitation on the part of the State Welfare Officers, I believe, in stating that they did not favor the principle that the money should be paid directly to the relief recipients, but it was a portion of the law and it had to be carried out as it was statutory

In order to meet this statutory requirement, they requested the State Society to try it out for a period of time, and the State Society, although it objected to the principle of paying the recipient directly rather than the doctor, agreed to make the trial over a period of about six months

Therefore, I don't think there is anything antagonistic in the resolution asking the Federal Government to change the law in regard to the direct payment to recipients for medical care

Secondly, I think that the local county societies in the metropolitan area very strongly resisted the trial, although they were forced to carry on with the State Medical Society because of the fact that in certain parts of the state it was apparent that relief recipients—old age recipients rather—were paying their doctors in the majority of instances, but I don't believe that we could say if we passed the first resolution we are going counter to anything that the State Medical Society Committee agreed upon

DR. F. LESLIE SULLIVAN, *Schenectady* It seems to me that the further we go on with the

discussion of these resolutions the more confused we get. It has always been the aim of this Society in the past—and I think it is one of the ideals that we relish—to maintain a direct doctor-patient relationship. We have stressed that in New York State, we have stressed it in all the states of the Union that the doctor and the patient must not be divided, but they must be directly related.

Secondly, through the work of this Subcommittee on Medical Relief the doctors of this state have the opportunity to have a hand in the administering of this type of work. They also have an opportunity to take care of the abuses that might arise from a direct-payment system, if we believe that such should be administered.

I don't believe that a resolution from this House to the American Medical Association, asking them to prepare legislation to amend this section of the public welfare law so that direct payment may be made to the doctor for care is consistent with the policy that we wish to follow. Further, this committee conducted its negotiations in the belief that the House still desired that the relationship between the doctor and his patient should be undisturbed.

In the administration of relief for dependent children, it has been found that the abuse of the direct-payment system has been less than 2 per cent, and I think that, consistent with the recommendation of the Subcommittee on Medical Relief, we can give them an opportunity over a six months' period to find out whether or not this thing will work.

SPEAKER BAUER Is there any further discussion on the amendment? If not, the question is on the amendment. The amendment is that the committee's report be changed to provide that this resolution shall be passed memorializing the American Medical Association to take efforts to have the Social Security Law changed.

The question was called for, and the amendment was put to a vote, and was lost.

SPEAKER BAUER The question is now on the recommendation of the reference committee as amended by Dr Schiff, and as accepted by Dr DiNatale, the chairman of the reference committee, that no action be taken on these resolutions. Is there any discussion on that?

The question was called for, and the motion was put to a vote, and was carried.

74 Report of the Reference Committee on New Business B—Medical Preparedness—Funds for County Society Committees

(Section 21)

DR. PETER J DINATALE, Genesee On the resolution, as presented by the Medical Society of the County of Kings, reading

"WHEREAS, the American Medical Association and the Medical Society of the State of New York have agreed to assist the Federal Government in National Defense, and

"WHEREAS, this has necessitated the selection of over 2,000 physicians in New York State to work on Local Draft Boards and Medical Advisory Boards, and

"WHEREAS, selection and recommendation of physicians to serve on these Boards has necessitated innumerable telephone conferences and correspondence, and

"WHEREAS, requests are constantly being made of the county medical societies by both the State Medical Society and the Army as to the capacity of physicians to do certain types of work, and

"WHEREAS, we are now being requested to review the records of and to certify the 4,600 doctors of Brooklyn as to their availability for military or naval service, or as to their need for the care of the civilian population, and

"WHEREAS, this is an added burden on already overburdened clerical and stenographic staff in the county medical societies, therefore be it

"Resolved, that the New York State Medical Society allot sufficient funds to the county societies to provide additional necessary clerical and stenographic help and office equipment to assist in carrying on the work of the committees on medical preparedness,"

Your reference committee felt that as this was really work asked for by the American Medical Association, by doctors of doctors, this resolution should be changed to read

"That the Medical Society of the State of New York allot sufficient funds to assist the county committees on medical preparedness where it is evident that such assistance is needed."

The resolution, as amended, is approved by your reference committee. I move its adoption as so amended.

The motion was seconded.

SPEAKER BAUER You have before you the report of the reference committee, which is amending the original resolution, providing for the allotment of funds by the State Medical Society where such assistance is deemed necessary. Is there any discussion on that report?

DR. GEORGE W. KOSMAK, New York This seems to me a very indefinite proposition. We do not know how much assistance will be needed by these individual county societies. I think if we are to extend such aid a much more definite and detailed proposition should be put before us. My God, you cannot tell where this is going to end up. (Applause)

DR. HAROLD J. HARRIS, Essex I do this work for our county society, Essex. It is a small one, but it is work that physicians have to do. I cannot see where clerical hire or office equipment comes into it. I think in any county it is a matter of physicians judging the qualifications of other physicians, and I do not see how we can employ clerical hire to do that for us. (Applause)

DR. FREDERIC E. SONDERN, New York Mr Speaker and Gentlemen, I think it is a pretty well-established rule that the House of Delegates cannot vote any money for any purpose. Therefore, if you are going to pass any resolution like this you are going to recommend to the Board of Trustees and not vote the money.

I am "agin" it down in my heart, but if you are going to do it, don't do it directly but recommend it to the Trustees, and let them be the judges. (Applause)

SPEAKER BAUER Dr. Sondern's point of order is correct. Expenditures must be recommended to the Board of Trustees.

DR. JOHN J. MASTERSON, Kings I am sorry Dr. McGoldrick is not here, he is evidently

downstairs on a reference committee In Kings County, where I happen to be chairman of the board of trustees, we have had to spend some real money for this work We have had to hire additional quarters, we have had to buy a typewriter, we have had to buy a desk, we have had to buy some files, and we have had to hire a stenographer

Dr Kosmak said, and properly so, that they should know how much the various county societies need Well, we don't know ourselves how much we will need because we don't know how much work we are going to do

I think some provision should be made whereby this House of Delegates or some other body has the power to say whether our money shall be expended or not, and not the Board of Trustees alone, because I think if only the Board of Trustees has the power to say whether money shall be expended or not, then the Board of Trustees is the State Society when it comes to funds, and not the House of Delegates, or the body itself

In the large counties this is a serious question We cannot lay down on the job in Kings because we have had to spend this money We want to do our part We have received a questionnaire to send to all the hospitals in the city asking how many men they will require on their staff We have got to get in contact with all those medical reserve officers who have not responded to the questionnaire, and if anybody does not think that is real work in a county of 4,500 men they are mistaken.

We are spending money which we feel either the State Society or a state or federal agency should do the spending on, and not us

SPEAKER BAUER For the information of the House I will read the last sentence of Chapter IX of the Constitution

"The approval of the Council and of the Board of Trustees shall be necessary for the expenditure of any funds of the Society"

DR. HARRY ARANOW, *Bronx* I make an amendment to the effect that this be referred to the Council for determination of the amount at the time such expenditure is deemed necessary

SPEAKER BAUER That is not properly an amendment, but I will take it as a motion to commit

DR. HARRY ARANOW Very well!

SPEAKER BAUER Dr Aranow moves that the matter be referred to the Council for action

DR. LOUIS A VAN KLEECK, *Nassau* I second that

SPEAKER BAUER Is there any discussion on the motion to commit?

DR. EDWARD T WENTWORTH, *Monroe* I don't like that because I don't see where the money is coming from Granted that Kings County may need assistance, I cannot quite see how Lewis County should assist them or why they should have to assist them

Possibly the Federal Government should pay this bill, but if it does not I cannot see at all why the Medical Society of the State of New York should pay it

If the matter is referred to the Council, as that motion, or amendment, or whatever you termed it, indicates, it rather carries the mandate with it that the Council has to find this money

SPEAKER BAUER No, the motion was to commit the whole matter to the Council to determine what should be done with it, not that they were directed to spend any funds It was referred to the Council to decide how the matter should be handled.

DR. WENTWORTH If that's the case, I am satisfied

DR. DAVID J KALISKI, *New York* I may be able to give some information about certain reduplication of work in this connection There is a Joint Committee of the Hospital Association and the Medical Profession in regard to selective service and medical reserve officers who may be required in the defense program or in the eventuality of war This matter was brought to the attention of the group of which Dr Rappleye is chairman and the president of the Hospital Association is a member, and I believe that they are now making a survey of all of the hospitals to indicate the number of men who will be required to carry on under any eventuality, the number of men who are members of the Medical Reserve Corps, the number of such men who may be called into service, and other pertinent facts in this connection

It may be that the Kings County Medical Society and other county societies are not aware that such a survey is being made by the Joint Committee of the Hospital Association and the Medical Profession, which may make it unnecessary for Kings County Society and the other county medical societies to make a considerable part of this survey

DR. MERWIN E MARSLAND, *Westchester* Mr Speaker, this is only a suggestion These examinations are made by physicians, as I understand it, without recompense, am I right?

DR. MASTERSON Right

SPEAKER BAUER You are right

DR. MARSLAND They are made in communities that have some degree of public spirit, and probably within a short time will have more In certain localities the local hospital has supplied the clinic rooms and secretaries and nurses to aid in these examinations The doctors of the local medical societies have not had to pay out any money Why is it not possible that in these communities where it is a financial problem the interest of some public organizations be aroused? Perhaps they don't know about it, and they would be glad to volunteer their services as secretaries, clinic aides, etc They frequently do to the usual clinics in their locality

DR. MASTERSON This work that the various county societies are doing I understand has been taken up at the request of the State Medical Society, is that not correct? We are not asking Lewis County or any other county to help pay the expenses incurred by our society in doing this work We are paying into the State Society nearly \$30,000 a year There is no more reason why we should dig into our surplus than the State Society We should not have to dig into our surplus to pay for this, and if we are forced to, why should not the State Society help us?

This expenditure of money is not in relation to the examinations This expenditure of money is for a clerk, room hire, and office furniture We have in our county about 100 boards We have twelve medical advisory boards These

people are calling up on the telephone all day long for information. We must have somebody there to answer the telephone. We are not asking any money for the time given by the doctors, but only for the actual expenditure of money that we are compelled to pay out to do this work.

DR. ARANOW. A point of order, Mr. Speaker. I made a motion to commit, and all the discussion has been on something which is entirely different.

SPEAKER BAUER. The motion before the House is on committing this resolution to the Council for such action as they may find expedient.

DR. JOHN L. BAUER, *Kings*. I am a bit puzzled by the need of a motion to commit or by the interpretation given to our Constitution and Bylaws. It seems to me that the House of Delegates is the whole, and that the Council and Board of Trustees are just part of this House, and I see no reason in the world why any other interpretation should be given this than that this House of Delegates can decide this question now as to what they, themselves, want done.

SPEAKER BAUER. The motion before you is on the commitment. Is there any further discussion? If not, all those in favor of committing this resolution to the Council will say "Aye", opposed, "No". The Chair is in doubt. Those in favor of committing the resolution will please stand and remain standing until counted. Now those opposed will please stand and remain standing until counted. The motion to commit is carried by a vote of 67 to 45. (Applause)

Have you any other resolutions?

DR. DiNATALE. Yes, I have two dandies coming up. (Laughter)

75 Report of Reference Committee on New Business B—Licensure—Standards for Recognition of Foreign Medical Schools

(Section 14)

DR. PETER J. DiNATALE, *Genesee*. On the resolution presented by Dr. Winslow, reading

"WHEREAS, any historical review of the development of medical licensure in the State of New York brings into prominent relief the important role that the Medical Society has assumed in each step of that development, the Society having initiated movements from time to time to raise the requirements for licensure with the sole objective in view to provide for the people of the state the very best quality of medical care available, and

"WHEREAS, the existing requirements for medical licensure if properly enforced within the intent of the law will provide ample protection to the people from the ministrations of incompetent practitioners so far as any law can afford that protection, and

"WHEREAS, a student from the United States or Canada is required to present evidence that he has completed not less than four satisfactory courses of at least eight months each in a medical school in this country or Canada registered as maintaining at the time a standard satisfactory to the Department, or has received the degree of bachelor or doctor of medicine from some medical school in this country or Canada, registered as main-

taining at the time a standard satisfactory to the Department, and

"WHEREAS, a determination of the reputation and good standing of medical schools in the United States and Canada is on a sound basis by reason of periodic inspections of such schools by the Department of Education of New York State, the Council on Medical Education and Hospitals of the American Medical Association and the requirements for membership in the Association of American Medical Colleges, but the Department has available no comparable evidence with respect to medical schools located elsewhere because of the fact that no agency exists in this country which inspects or classifies such foreign schools, and

"WHEREAS, despite this lack of authentic information as to the quality of instruction given in foreign schools, graduates from such schools are in increasing numbers receiving licenses to practice medicine in New York State, and

"WHEREAS, according to the statistics furnished by the Bureau of Immigration of the United States, the influx of graduates of foreign medical schools into the United States has increased from 329 in the fiscal year ending June 30, 1931, to a total of 1,384 during the fiscal year ending June 30, 1939, making a total of 4,549 for the same period, a large majority of whom have been licensed in this and other states, and

"WHEREAS, the ethical and professional fitness of a candidate for medical licensure cannot be appraised solely on the strength of an examination but must be gauged also by the quality of instruction that the applicant has received during his pre-professional and professional schooling, and

"WHEREAS, the foregoing situation presents a continuing menace to the health and welfare of the people of New York State and thus constitutes a problem causing great concern to the medical profession of the state, be it therefore

"Resolved by this House of Delegates

"(1) That recognition for medical licensure in New York State, whether after examination or otherwise and irrespective of the question of citizenship, of graduates of foreign medical schools be strictly in accordance with the method of recognition that is applied with respect to the graduates of medical schools located in the United States and Canada. Any other method of recognition would constitute the grossest type of discrimination in favor of foreign graduates,

"(2) That in the future recognition be accorded graduates of a foreign medical school who apply for license to practice medicine in the State of New York, only when there is in the possession of the Department evidence of the quality of instruction imparted by the school of graduation. This must be of equal quality with the evidence required of approved domestic schools. The identical standard should be applied in approving all medical schools, domestic or foreign."

after considerable study your reference committee approves the resolution as read and moves its adoption

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Your committee wishes to advocate an expression of thanks and appreciation to the Governor for this veto action.

At this time the Governor has in his hands a bill providing that violations of the Medical Practice Act can be heard by a subcommittee of the Grievance Committee with a later confirmation by two-thirds vote of the full committee. We hope that the Governor will approve this measure.

Your committee approves of the stand of the Committee on Legislation to safeguard the use of the title of "Doctor" by those who practice podiatry, and that measures be taken to enact legislation to limit the term "Doctor" to those who deserve it without qualifying terms.

Your committee approves of the suggestion of the Committee on Legislation for the early introduction and aggressive canvassing of individual legislators in reference to the Physicians' Lien Bill, the Radiology Bill, and the bill for medical expert testimony in personal injury litigation.

We are impressed by the efforts of the Committee on Legislation and our Executive Officer in defending constructive medical legislation.

Our Society has always been very successful in its opposition to vicious legislation, however, our efforts to pass legislation have not always resulted in favorable action. This has frequently been due to the lack of united support to the bills introduced in the Legislature. Opposition has frequently come from individual members of our Society. This has always been permitted. In spite of the fact that the Society has gone on record against opposition from a component society except when contrary opinions are held they be referred to your State Committee on Legislation, instances have occurred when component societies have been engaged in active opposition to the decision of the State Society. These contrary opinions have been presented to the State Legislators.

Your Committee wishes to express its confidence in the constructive activities of our executive officer in connection with his legislative duties and commends the Committee on Legislation for their alertness during the past year.

I move the adoption of this report.

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried.

Malpractice Defense and Insurance. Dr. CUNIFFE. The reference committee reviewed and the Council approved the report of the Committee on Malpractice Defense and Insurance of which Dr. Bandler is chairman.

The committee notes that during the eleven months covered by the report the number of suits and claims against members of the Society and the cost of disposing of them has remained substantially the same as in 1939.

It is noted that a revision of the rate scale for malpractice insurance may be recommended with an increase in the case of the minimum limit policy and a decrease for the higher limits, thereby making the premium charges commensurate with the actual costs of operation.

The following extract from the report is especially called to the attention of the membership:

"As in previous years, it is noted that loose, unwarranted and frequently thoughtless criti-

cism by fellow-members of their confreres continues to be the largest single inspiration for malpractice actions. This is a phase of medical practice which can and should be vigorously attacked in every community."

The fact that during the past year 35 malpractice claims were brought against noninsured members is a strong argument for every member to avail himself of this protection. The present participation under the group plan amounts to only 48 per cent of the total membership, in spite of an actual net gain of 300 policyholders during 1940.

The membership is reminded that medical officers of the armed forces are not immune to damage actions for alleged acts of malpractice committed during their military service. It is necessary, therefore, that they continue their insurance while in the Army. However, it should be stated that they are not protected by their policy for the acts of their assistant or substitute in civil practice if said assistant or substitute is not individually insured. They may also be liable for the acts of their assistants or substitutes in their civil practices. Members entering the military service, therefore, have a two-fold incentive for keeping their malpractice insurance in force and also seeing that substitute is individually insured. It may be mentioned also that the policy of a principal under the group plan only protects him from actions growing out of the acts of an assistant if the latter is also a member of the State Society and is insured under the group plan.

The stability of the Yorkshire Indemnity Company, which underwrites the Society's group malpractice insurance, as a sound and dependable American company, is endorsed, and the cooperation of its officers and of Colonel Wanvig and his associates is appreciated.

I move the adoption of this portion of the report.

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried.

Legal Counsel. Dr. CUNIFFE. This report is arbitrarily divided into three parts:

- 1 Actual handling of malpractice cases,
- 2 Counsel work with officers, committees, and individual members of the Society,
- 3 Legislative advice and activities.

It will be considered in that order.

Litigation.—The report again calls attention to the danger of unjustified criticism of the work of one physician by another as the frequent cause of an unjustified and unfounded malpractice suit. Where an opinion must be rendered of the poor result of treatment, that unfavorable opinion should never be given until one has ascertained all the facts and circumstances which entered into or affected the previous treatments.

The report calls attention to the hazard of a malpractice action to the practicing physician, not only to his peace of mind, ability to attend to his practice during the trial due to the delays which attend court work, but also the danger of an unfavorable and costly result. It should be borne in mind that the rights of the doctor are in the hands of lay jurors sometimes swayed by emotion rather than reason. This risk is increased somewhat by the presence of women

The motion was seconded

SPEAKER BAUER You have before you the recommendation of the reference committee, which carries with it the approval of the resolution as read. Is there any discussion on it?

DR HENRY B RICHARDSON, New York I should like to discuss this resolution. The members of the House have already accepted a report, part of which reads

"It has been our aim that the refugee physicians licensed to practice in this state and the foreign graduates licensed to practice in the state be treated on a basis of equality with the American doctor before the law in regard to commissions and in regard to military service"

A little below there is another sentence to that same effect

In listening carefully to this resolution, although the word "refugee" is carefully avoided, the burden of the resolution is to reduce acceptance of doctors from any medical schools outside of the United States and Canada who have not already been licensed

If the recommendation of the committee of reference is adopted, then on April 28 there comes about a change. Those individuals previously accepted for licensure become logically not fit to be licensed, and those who might be licensed later on after this date likewise become not fit to be licensed on a certain date

The effect of the resolution is for this House to reverse itself with respect to a report that has already been accepted on the same day

The number of doctors available per number of population has been mentioned. The fact that has not been mentioned is that we are in a state of preparedness, and that the number of doctors available for civilian work per unit of population is diminishing rapidly, and will diminish with much greater rapidity, to say nothing of the thousand physicians whom it is planned to send to Europe

CHORUS Nol Nol

DR RICHARDSON It appears to me that the Society faces a shortage of physicians and not a surplus, that they are putting themselves in the position of depriving the public of medical help that they sorely need

It seems to me that not only should the Society not reverse itself on any one day, but it should not put itself in the position of reversing itself in the near future

SPEAKER BAUER Is there any further discussion on this report?

DR GEORGE A BURGIN, Herkimer The Herkimer County Medical Society is heartily in favor of something of this kind. We feel that the resolution as suggested tonight is about four years too late. About four years ago we introduced a resolution, which was rejected, along the same line, with the idea of demanding that graduates from foreign schools or refugees coming here should fulfill the same obligations before getting a license that an American doctor might be required to fulfill in going to another country.

You may not be aware of the fact that in England, for instance, no matter where you are from and what your credentials may be, before being given a license you must spend at least one year in one of their medical schools before taking your state board. We feel that this should be

passed, and we are only sorry that it has been delayed so long. (Applause)

The question was called for, and the motion was put to a vote, and was carried.

76 Report of Reference Committee on New Business B — Licensure — Requirement Full Citizenship (Section 15)

DR PETER J DiNATALE, Genesee On the resolution presented by the Medical Society of the County of Erie reading

"WHEREAS, it has been the custom of the Education Department of the State of New York to grant medical licenses to foreign physicians, and

"WHEREAS, this practice has not been to the best interests to the general public and also to the young people in this country who have studied in our medical schools, therefore be it

"Resolved, that the Medical Society of the County of Erie go on record as being in favor of requiring full citizenship as a prerequisite for the obtaining of a medical license to practice in the State of New York,"

Your reference committee recommends that this resolution be not approved because it is in part a contradiction of the resolution that you have just passed, and because it has been learned by your committee that attempts by our Legislative Committee to have such laws enacted have been shown to be impractical at present

I move the adoption of the report of the reference committee

The motion was seconded, and as there was no discussion, the motion was put to a vote, and was carried

77 Report of Reference Committee on the Report of the Council—Part VII—Legislation, and Malpractice Defense and Insurance, and Report of Legal Counsel

Legislation (Section 9) DR EDWARD R. CUNIFFE Your reference committee begs to express approval of the activities of the Committee on Legislation during the past session of the State Legislature and during the year

Your committee approves of the regular, special bulletins and comment sheets issued by the committee and the distribution thereof to all the component county societies

In this connection your committee approves that protest or approval comments be distributed to all members of the component societies after approval of such action and comment by the Committee on Legislation. This activity on the part of the component societies would serve to stimulate interest of our indifferent membership

Your committee commends the Committee on Legislation for its fruitful activities in combating the Wagner Health Insurance Bill and the Chiropractic Bill and also its efforts to protect and maintain our high, ethical standards in their opposition to the Quinn Bill which would have lowered the existing confidential relation between physician and patient. This latter bill, in spite of our opposition, was passed by the legislature, but was fortunately vetoed by the Governor

Law introduced into the Senate as Bill No 1195 has passed both the Senate and Assembly and is now awaiting the Governor's signature, any comments at this time on the amendment are academic

However, the amendment as presented in the report of the Council received complete review by your reference committee After consultation with a member of the Medical Grievance Committee of the Department of Education, we believe that some of the provisions in the amendments will improve the efficiency of the Medical Grievance Committee Undoubtedly, the provision in the amendment requiring that two-thirds of the members of the Medical Grievance Committee constitutes a quorum will curtail the number of fruitless meetings of the committee Your reference committee feels that the appointment of one member of the committee as a subcommittee to take testimony, will speed up the number of hearings and decrease the number of pending cases Your reference committee approves particularly the amendment which makes all cases come at least before a subcommittee for determination of trial necessity Your committee feels that the requirement that one of the majority for a decision of guilt be a member of the respondent's school of practice, will not be detrimental to the efficiency of this committee

I move the adoption of the reference committee's report

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried

SPEAKER BAUER I recognize Dr Master-son, Chairman of the Reference Committee on New Business C However, for the information of the Chair, has anyone any further resolutions to introduce? If so, I will give you an opportunity as soon as we finish Dr Masterson's report to get them in tonight

79 Report of Reference Committee on New Business C—Leaves of Absence for Officers in Military Service (Sections 28, 66)

DR. JOHN J MASTERSON, Kings This is on the resolution presented by Dr Theodore West, of Westchester

"WHEREAS, many officers of this Society and of its District Branches are also officers in the Medical Reserve of the armed forces of the United States, and

"WHEREAS, such officers, when called to active duty, may, by reason of distance or the press of military work, be unable to function properly as officers of this Society or its District Branches, and

"WHEREAS, there is no provision in the present Bylaws of this Society to cover such an emergency, therefore be it

"Resolved, that any officer of the Medical Society of the State of New York or its District Branches who is called into active service with the armed forces of the United States may, upon application to the Council, be granted leave of absence during his period of active service, and be it further

"Resolved, that during such absence his duties shall be delegated as the Council may direct except where such delegation is already provided in the Bylaws "

After consultation with the Counsel of the Society we disapprove of this resolution for the following reasons

The Bylaws under Roberts' Rules of Order cannot be amended, changed or suspended by unanimous consent or by any consent except as they relate to procedural matters

The question under consideration does not relate to a procedural matter, hence we do not find any assistance from the unanimous consent

So far as the election of officers, Chapter 7, Section 11, of the Bylaws provides as follows

"The second vice-president, the assistant secretary, the assistant treasurer, the vice-speaker will serve as the first vice-president, the secretary, the treasurer, the speaker respectively whenever these senior officers are incapacitated for service by mandatory absence."

We can construe service in the Medical Reserve to the armed forces or Public Health Service of the United States as "mandatory absence" within the meaning of the above quoted Bylaws

So with the President under Chapter 7, Section 2, of the Bylaws

"The president-elect is to perform the duties of the president in the absence of the president In the event of the president's death, resignation, removal, incapacity or refusal to act, the president-elect shall succeed him."

Thus, we find that under the Bylaws the officers above enumerated do not succeed to the senior office, but merely act in their absence

The Bylaws do not provide for any other officer acting in the absence of another Hence, there is no provision which can legally take care of that situation in the event that such an officer should be a member of the Army or Navy forces

There is no provision in the Bylaws to take care of any officer of a district branch who may be called into active service in the armed forces of the United States or the Public Health Service of the United States

With the exception of the officers above enumerated, it will be necessary for any of the other officers when called into military service to resign if they find themselves unable by reason thereof to fulfill the duties of their office In that event the vacancy must be temporarily filled in accordance with the provision of the Bylaws (Chapter 4, Section 6)

We move the disapproval of the resolution

SPEAKER BAUER I think the motion is unnecessary It has been brought out that it is illegal, which was the previous ruling of the chairman, and I do not think it needs a vote It is ruled out of order

80 Report of Reference Committee on New Business C—Health Programs in National Defense (Section 57)

DR. JOHN J MASTERSON, Kings On the resolution introduced by Dr Samuel J Kopezky, of New York, reading

"WHEREAS, from many quarters measures which involve medical care of the public are being proposed in the interest and under the banner of the National Defense Program, and

jurors, also jurors out of work and on relief. It was necessary for a county of this state to call attention to the enormous and sometimes unmerited judgment resulting from juries composed in a great measure from people on relief. A modified method of the selection of jurors was necessary by the clerk of the county to correct this condition. However, it must hold to some extent during our present economic situation.

This tendency to unjust criticism should be actively attacked in all communities. It offers the most effective and sometimes only way in which unfounded and unjust claims can be discouraged and needless malpractice suits prevented.

The plea for insurance by more members is heartily approved. No one can afford to be without insurance protection at the present time. Last year 35 suits were prosecuted against doctors not insured by either the group or private insurance companies. No necessity for this warning should exist. A more active campaign for insured members should be undertaken.

We learn from this report that there were 131 cases for malpractice instituted during the last year as against 170 the previous twelve months. There were 145 disposed of as against 191 at the previous reporting, 103 were terminated in favor of the physicians. Forty of these cases were settled. Two cases resulted in judgment for the plaintiff as opposed to three in the previous year.

No fixed rule can be made as each case must be judged on its merits. Some must be settled, especially where there is negligence or error in practice. These settled cases are recorded in court as discontinued and no injury is done to the physician, and it is only practiced when an unfavorable result is expected.

The members of the Society may very easily pass over the work of counsel with a mere consideration of the department handling litigation. A great amount of work, however, is done which has no relation to the courts. It can be somewhat appreciated from a study of the report which lists thirty different subjects requesting advice and counsel. This was given orally, over the telephone, and in writing. These questions show the great diversity of the work of this office. Some are inquiries concerning ethical procedures. The counsel is primarily one to advise about matters of law. The elemental force of ethics is derived from the principles of ethics of the American Medical Association. Therefore, we believe that the counsel should be relieved of this work unless it is a question of law. The committee urges the Council to consider an amendment to our constitution setting up a body for the interpretation of medical ethics, to which committee questions could properly be addressed.

Again, among the many duties of this office is the advice given and consultations held with the many committees. Proposed amendments to our constitution, interpretation of the Bylaws, not alone of our State Society, but also many of its component societies, demand his attention. The drawing of commercial contracts with exhibitors and between officers and the Society are done by this office. These activities, together with the advice about legislation and the various

articles contributed to our JOURNAL, make a busy department which works during the entire year.

The committee extends its commendation for the excellent work of the department and the completeness of the annual report to our counsel and also to his able associates, Mr. Martin and Mr. Clearwater.

I move the adoption of this report.

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried.

DR. CUNIFFE. Now I move the adoption of the report of the reference committee as a whole.

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried.

78 Report of Reference Committee on Report of the Council—Part X

Memorial to Dr. Guy S. Carpenter. Dr. NORMAN S. MOORE, *Tompkins*. Your reference committee believes that the Council's Memorial to Dr. Guy S. Carpenter, of Waverly, New York, is a fitting expression of gratitude for the life of service which Dr. Carpenter unselfishly gave to this Society.

Election of Councilor. We believe that the Council acted wisely in electing Dr. Floyd Winslow, of Rochester, to fill the vacancy on the Council created by the death of Dr. Carpenter.

Nominations. We endorse as a wise choice the nomination by the Council of Dr. Peter Irving to succeed Dr. Nathan Van Etten as a member of the Nurse Advisory Council.

Likewise, your reference committee approves the nomination of Dr. Terry M. Townsend as successor to Dr. Orrin S. Wightman as a member of the Committee on Grievance of the State Department of Education.

Amendment to the Nurse Practice Act. Your reference committee approves the Council's decision to recommend the retention in the Nurse Practice Act of the requirement of endorsement by two physicians, members of a county medical society.

Annual Meetings. We approve the Council's appointment of Dr. J. Sidney Ritter, of New York, as secretary of the Section on Urology to fill the vacancy of that office created by the death of Lisle B. Kingery, M.D.

The creation of a new session of the State Society on the *History of Medicine*, is approved, and your committee is of the opinion that the new session will be an added interest to our scientific assembly.

The establishment of a round-table conference on Tumor Clinics to be held during the present Scientific Session is an example of the cooperation between the Council and the Committee on Scientific Programs. Such cooperation enhances the educational value of our annual meetings and your reference committee is favorable to this attitude on the part of the Council.

Delegates to Vermont State Medical Society. Your reference committee feels our Society was fortunate in having both the delegate and alternate to the Vermont State Medical Society represent us at the annual meeting in Vermont.

Amendments to the State Education Law. Because the amendment to the State Education

in the case of Dr Cottis, for two years, and in the case of Dr Rooney, for one year

83 Elections

SPEAKER BAUER According to the Bylaws the first order of business on the last session of the House of Delegates is the election of officers

TELLERS

SPEAKER BAUER The Chair will appoint the following as tellers

A A Gartner, *Erie*, Chairman
William A MacVay, *Monroe*
Frederic W Holcomb, *Ulster*
Madge C L McGunness, *New York*
Elliot T Bush, *Chemung*

ROLL CALL

SPEAKER BAUER The Assistant Secretary will now call the roll

The Assistant Secretary called the roll and the following responded

COUNTY SOCIETY DELEGATES

Albany
William B Cornell
Otto A. Faust
Raymond F Kircher
Allegheny
Lyman C Lewis
Bronx
J Lewis Amater
Edward R. Cunniff
Samuel Epstein
Edward P Flood
Vincent S Hayward
William Klein
Emil Koffler
Voses H Krakow
Broome
Samuel M Allerton
Charles L Pope
Cattaraugus
Leo E Reimann
Cayuga
Harry S Bull
Chautauqua
Edgar Bieber
DeForest W Buckmaster
Chemung
Elliot T Bush
Chenango
Archibald K Benedict
Clinton
Leo F Schiff
Columbia
John L Edwards
Delaware
Robert Brittain
Dutchess
Samuel E Appel
Scott L. Smith
Erie
John T Donovan
Edward J Lyons
Harry C Guess
Thurber LeWin
Alfred H Noehren
Joseph C O Gorman
Herbert E Wells
Carlton E Wertz
Essex
Harold J Harris
Franklin
Charles C Trembley
Fullton
Sylvester C Clemans
Genesee
Peter J DiNatale
Greene
Kenneth F Bott
Herkimer
George A Burgin
Jefferson
Charles A. Prudhon
Kings
Albert F R Andresen
John B D Albora
Maurice J Dattelbaum
Harry Feldman
Charles F Fisher
Charles Goldman
Irving Gray
Edwin A Griffin
Abraham Klein
Walter D Ludlum
A W Martin Marino
John J Masterson
Harvey B Matthews
Daniel A McAteer
Charles F McCarty
Thomas A McGoldrick
William C Meagher
William Z Fradkin
Mayer E Ross
Irving J Sands
Mortimer Kopp
Max Lederer
Thomas B Wood
Livingston
Charles Gullo
Madison
Howard Beach
Monroe
Joseph P Henry
William A MacVay
Leo F Simpson
Willard H Veeder
Warren Wooden
Montgomery
E Harrison Ormsby
Nassau
Charles W Martin
Louis A Van Kleeck
New York
Walter P Anderson
Louis F Bishop Jr
Emily D Barringer
Samuel B Burk
Albert A Cinelli
Ira Cohen
Vincenzo Fanoni
Howard Fox
B Wallace Hamilton
Alfred W Hellman
Roy B Henline
Benjamin Jablons
David J Kaliski
Samuel M Kaufman
J Stanley Kenney
Moses Keschner
Francis N Kimball
W Bayard Long
Peter M Murray
Maximilian A Ramirez
Nathan Ratnoff
Henry B Richardson
Madge C L McGunness

Niagara
Guy S Philbrick
Richard H Sherwood
Oneida
John F Kelley
Dan Mellen
Andrew Sloan
Onondaga
John J Buettner
William W Street
Albert G Swift
Ontario
Melville D Dickinson Jr
Orange
William J Hicks
Harold F Morrison
Orleans
John Dugan
Oswego
Harrison M Wallace
Otsego
James Greenough
Pulnam
Henry W Miller
Queens
Thomas M D Angelo
James M Dobbins
W Guernsey Frey, Jr
Walter L Lynn
James R. Reuling Jr
Daniel J Swan
Rensselaer
John D Carroll
Stephen H Curtis
Richmond
Milton S Lloyd
Stanley C Petit
Rockland
Stephen R. Monteith
St Lawrence
W Grant Cooper
Walter H Mulholland
Saratoga
G Scott Towne
Schenectady
Joseph H Cornell
F Leshe Sullivan
Schoharie
David W Beard
Seneca
Arthur F Baldwin
Steuben
Leon M Kysor
Herbert B Smith
Suffolk
Coburn A L Campbell
John L Sengstack
Tioga
John B Schamel
Tompkins
Norman S Moore
Ulster
Frederic W Holcomb
Warren
Morris Maslon
Washington
Denver M Vickers
Wayne
Ralph Sheldon
Westchester
Andrew A Eggston
Arthur F Heyl
Merwin E Marsland
Laurance D Redway
Romeo Roberto
Wyoming
G Stanley Baker
Yates
Bernard S Strait

DISTRICT DELEGATES

Theodore West
Louis H Bauer
Sylvester C Clemans
Leon J Leahy

OFFICERS

James M Flynn
Samuel J Kopetzky
Albert A Gartner
Peter Irving
Edward C Podvin
George W Kosmak
Kirby Dwight
Louis H Bauer
William Hale

TRUSTEES

William H Ross
Thomas M Brennan

COUNCILORS

Harry Aranow
Floyd S Winslow
Clarence G Bandler
Edward T Wentworth
E Christopher Wood
Oliver W H. Mitchell
John L Bauer
Herbert H Bauckus
Augustus J Hambrook

EX-PRESIDENTS

Allan A Jones
Martin B Tinker
Arthur W Booth
Nathan B Van Etten
Harry R. Trick
William H Ross
William D Johnson
Chas. Gordon Heyd
Arthur J Bedell
Frederic E Sondern
Floyd S Winslow
William A Groat
Terry M Townsend

SPEAKER BAUER As there is a quorum present, and as the tellers have already been announced, we will now proceed with the election

ELECTION OF OFFICERS, TRUSTEES, AND COUNCILORS

The following officers were elected President, Samuel J Kopetzky, *New York*, President-Elect and First Vice-President, George W Cottis, *Jamestown*, Second Vice-President, William A Krieger, *Poughkeepsie*, Secretary, Peter Irving, *New York*, Assistant Secretary, Edward C Podvin, *Bronx*, Treasurer, Kirby Dwight, *New York*, Assistant Treasurer,

"WHEREAS, the Medical Society of the State of New York, heartily favors the National Defense Program and has placed all its facilities at the disposition of the governments, State and Federal, in the furtherance of this Defense Program, and

"WHEREAS, it is a matter of fixed policy of the Medical Society of the State of New York to safeguard the modes of medical practice which have given the communities of this state its present high level of health as an outstanding medical achievement involving as it does preventive, curative, and public health medical measures, and

"Therefore be it Resolved, that each and every proposition which is advanced from any quarter whatsoever which would integrate a medical service to the community shall be studied as to its adaption into the emergency program with every necessary protection as to its discontinuance when the present emergency shall have passed, and which shall be written into its procedures, and

"Be it further Resolved, that it is the expressed policy of the Medical Society of the State of New York that at their introduction the temporary nature of necessary health measures be stressed as they are developed and that no general program shall be approved coming under the terms of 'part of the Defense Program' which permanently would change the nature and mode of the present method of medical practice,"

your reference committee approves the resolution and recommends its adoption, and I so move

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried

81 Report of Reference Committee on the Report of the Council—Part VI—Medical Relief (Section 64)

SPEAKER BAUER Dr Van Kleeck, we did not quite complete your report We left it in abeyance

DR LOUIS A VAN KLEECK Yes, the tail end of it

SPEAKER BAUER The part we did not act on was the final part of Dr Van Kleeck's report which had to do with the direct payment for medical care to recipients of certain categories of relief instead of to the doctor, because there were two resolutions on the same subject that had been referred to Dr DiNatale's reference committee The House voted, when Dr DiNatale made his report on those two resolutions, to take no action, and in effect to allow the plan to have an opportunity to work for an experimental period, and in the meantime permit the Subcommittee on Medical Relief to collect data on it The final part of your report was in a similar vein

DR VAN KLEECK Yes

SPEAKER BAUER You have already acted on the two resolutions reported on by Dr DiNatale in the way that is suggested in Dr Van Kleeck's report We must finish his reference committee's report, which is really reiterating what we have already done for the sake of the record. Therefore, I place before you Dr Van Kleeck's recommendation for the adoption of that part of his report, which is practically

identical with what you have already adopted in connection with Dr DiNatale's report on those two resolutions

The question was called for, and the motion was put to a vote, and was unanimously carried

DR. VAN KLEECK Now I move to adopt the report of the reference committee as a whole

The motion was seconded, and as there was no discussion, it was put to a vote, and was carried

SPEAKER BAUER Are there any other resolutions?

(There was no response)

SPEAKER BAUER I think there are only three resolutions left in the hands of the reference committees, and all reports on the Council committees, President, Secretary, Board of Trustees, etc., have been taken care of, so there will be very little business to do tomorrow, other than these three resolutions and the election of officers

We will stand adjourned until nine o'clock tomorrow morning

The session recessed at 10 30 P M

Morning Session

Tuesday, April 29, 1941

The session convened at 9 30 A.M.

SPEAKER BAUER The House will be in order

There were announcements regarding the annual dinner, a meeting of the Medical Advisory Committee of the Saratoga Springs Authority, and the Conference on Medical Relief

82 Board of Trustees—Resignations

SPEAKER BAUER The Secretary has two communications to read

SECRETARY IRVING The first is from Dr Cottis

"Dr Peter Irving, Secretary, Medical Society of the State of New York

Dear Doctor Irving,

"I hereby tender my resignation as Trustee of the Society to take effect immediately

"Respectfully,
G W Cottis (Sgd)"

The second is a telegram from Dr James F Rooney

"I hereby tender my resignation as a member of the Board of Trustees to take effect immediately

James F Rooney (Sgd)"

SPEAKER BAUER As many of you know, Dr Rooney is in the military service at the present time and out of the state

What action do you wish to take on these resignations?

DR. ARTHUR J BEDELL, Albany I move they be accepted

CHORUS With regret

DR. BEDELL With regret

The motion was seconded, and as there was no discussion, it was put to a vote, and was unanimously carried

SPEAKER BAUER I declare there are now these two vacancies in the Board of Trustees

"Section 2 Qualifications

"No person shall practice the healing art unless he shall first have complied with the following prerequisites

"First, he must pass an examination given by the Board of Regents in the Basic Sciences, namely, Anatomy, Physiology, Chemistry, Bacteriology, and Pathology, and upon passing such an examination shall receive a Certificate of Proficiency in the Basic Sciences, which shall not confer the right to practice the healing art, and

"Second, after receiving said Certificate of Proficiency, he must pursue other studies as established by law and appear before the Board of Choice of the Board of Regents for further examination, and after having satisfactorily passed such examination, and having fulfilled other requirements prescribed by law, he may be licensed to practice

"Section 3 Penalty

"Any person violating any provision or provisions of the foregoing Sections shall be guilty of a misdemeanor punishable by law!"

The Reference Committee on New Business A recommended disapproval of this resolution on the ground that thorough enforcement of the existing Medical Practice Act would adequately accomplish the end sought, and this recommendation was adopted.

The other resolutions, after reports made thereon by reference committees, were either disapproved, or no action was taken.

SPEAKER BAUER We will now consider the executive session dissolved, and go into open session

85 Report of Committee on Awards of Scientific Exhibits

DR. WILLIAM A KRIEGER, *Dutchess* As Chairman of the Committee on Scientific Exhibits I wish to express my appreciation for cooperation received from Dr Wertz, Dr Noehren, Mr George Hale of the Hale Decorators, Inc, and the Hotel Management

The exhibits numbered 38 with 64 individuals participating Motion pictures consisted of 19 films

I also wish to express my thanks and appreciation to the Committee on Awards for their excellent work and judgment The Awards are as follows

RESEARCH

First

Ernest Witebsky, M D
Philip Weis
Anne Heide

Department of Pathology and Bacteriology
University of Buffalo, School of Medicine
Buffalo General Hospital
Buffalo

Laboratory Diagnosis of Trichinosis

Second

Viewing Box 21
Henry Minsky, M D,
Mount Sinai Hospital
New York

"Ligamentum" Hyaloida-Capsular Attachment of Lens to Vitreous

CLINICAL

First

Abner I Weisman, M.D
Christopher W Coates
Jewish Memorial Hospital
The New York Aquarium
New York

A New Test for Pregnancy (The Xenopus "Frog" Test)

Second

Chester D Moses, M D
Deaconess Hospital
Buffalo

X-Ray Pelvimetry

Honorable Mention

Milton S Lloyd, M D
Joseph A. Budetti, M D
City of New York Municipal Sanatorium
Otsville

Physical Findings in Bronchoscopy in Relation to Collapse Therapy of the Lung

SPEAKER BAUER Thank you, Dr Krieger! (Applause)

86 Presentation of the Incoming President-Elect, Dr George W Cottis, to the House

SPEAKER BAUER Dr Booth, would you consider yourself a committee of one to escort the new president-elect of the Society, Dr Cottis to the platform?

Dr Arthur W Booth escorted President-Elect Cottis to the platform amid applause.

SPEAKER BAUER Dr Cottis, I am very proud to be the first to congratulate you officially on your election. We all feel it is well deserved, and we know that the Society is very lucky in having you as its president-elect Won't you say a few words to the House?

PRESIDENT-ELECT COTTIS Mr Speaker and Fellow Members of the House of Delegates, I have nothing to say except that I realize the responsibility of this office which you have imposed upon me—I think "imposed" is the correct word. I accept it thankfully and humbly. I have watched the work of the presidents of this Society for thirty-five years. I attended the reunion meeting when the old State Society and the State Association buried the hatchet and became one unified professional organization. I have been intensely interested in the progress of Organized Medicine from that time to this, and that is why I realize the responsibilities imposed upon the officers of this Society. My only hope is that as a result of my years of observation of the way in which the past-presidents have devoted their time and their energy to this work I may profit enough by that observation to justify your choice.

I thank you! (Applause)

SPEAKER BAUER Thank you!

87 Notice of Intention to Amend Constitution and Bylaws

ASSISTANT SECRETARY PODVIN I desire to give notice of a proposal to amend Article IV of the Constitution in regard to the Council, which now reads

"There shall be a Council composed of the President, the President-Elect, the immediate Past-President, the Secretary, the Treasurer,

James R. Reuling, Jr., *Bayside*, Speaker, Louis H. Bauer, *Hempstead*, and Vice-Speaker, William Hale, *Utica*

The following Trustees were elected George W. Kosmak, *New York*, for a five-year term terminating 1946, Edward R. Cunniffe, *Bronx*, for a two-year term terminating 1943, and William A. Groat, *Syracuse*, for a one-year term terminating 1942

The following Councilors were elected for a three-year term terminating 1944 Floyd S. Winslow, *Rochester*, Clarence G. Bandler, *New York*, and Harry Aranow, *Bronx*

ELECTION OF A MA DELEGATES

The following were elected 1942-1943 Delegates Louis H. Bauer, *Hempstead*, James M. Flynn, *Rochester*, George W. Kosmak, *New York*, Thomas A. McGoldrick, *Brooklyn*, Samuel J. Kopetzky, *New York*, John J. Master-son, *Brooklyn*, John T. Donovan, *Buffalo*, Frederic E. Sondern, *New York*, and Walter W. Mott, *White Plains*

The following were elected 1942-1943 Alter-nate Delegates William A. Krieger, *Pough-keepsie*, G. Scott Towne, *Saratoga Springs*, John L. Edwards, *Hudson*, John D. Carroll, *Troy*, Leo F. Schiff, *Plattsburg*, Alfred M. Hell-man, *New York*, James N. Dobbins, *Long Island City*, Laurance D. Redway, *Ossining*, and Moses H. Krakow, *Bronx*

ELECTION OF RETIRED MEMBERS

The following members were elected to Retired Membership

Fred D. Andrew, *Rochester*, Annetta Barber, *Glens Falls*, Sherman Bates, *Richmond Hill*, Joseph Baum, *Far Rockaway*, Frank P. Bayliss, *Syracuse*, George H. Bell, *New York*, Clarence H. Bonnell, *Rye*, Samuel S. Brown, *Brooklyn*, Arthur H. Brownell, *Oneonta*, Alice Gates Bugbee, *White Plains*, Myron E. Carmer, *Lyons*, Howard D. Chapman, *Auburn*, Charles H. Chetwood, *New York*, Martin Cohen, *New York*, William J. Cranston, *Kingston*, Stanton Curry, *Peekskill*, Joseph Davidson, *New York*, George E. Davis, *New York*, Henry P. de Forest, *New York*, Fanny Dembo, *New York*, Roger Dexter, *Northport*, Frank L. Eastman, *Kingston*, David Felberbaum, *Miami Beach, Florida*, Hermann Fischer, *New York*, Philip J. Genthner, *Brooklyn*, Samuel Lee Gifford, *Whitesboro*, H. DuBois Goetchius, *New York*, Elias B. Guile, *Utica*, August Haasler, *Brooklyn*, Frederic C. Hargrave, *Pasadena, California*, Herman E. Hayd, *Buffalo*, Henry P. Hirsch, *New York*, Gustav A. Hitzel, *Buffalo*, James E. Holden, *Collins*, William Jacobsohn, *New York*, Smith Ely Jelliffe, *New York*, John Francis Kent, *Brooklyn*, Florence M. Loughton, *New York*, Theodore A. Lehmann, *Long Island City*, John Lennon, *New York*, Percy E. D. Malcolm, *New York*, Alexander Mark, *Elmura*, Herbert W. Matthews, *Penn Yan*, Fergus J. McDonough, *Brooklyn*, Marcus Neustaedter, *New York*, John W. Parrish, *Brooklyn*, M. L. Pinco, *San Diego, California*, Paul F. Pyburn, *Brooklyn*, Daniel L. Rogers, *Bolton Landing*, Chauncey A. Rood, *Brocton*, Jacob C. Rosenbluth, *New York*, E. Wood Ruggles, *Rochester*, Armand J. Salmon, *Brooklyn*, John J. Sheehey, *Garrison*, Herman B. Sheffield, *New York*, William L. Sneed, *New York*, Bernard Sour, *New York*,

Florence I. Staunton, *Peekskill*, Walter Whitcomb Strang, *New York*, Willard H. Sweet, *Peekskill*, Robert H. Tedford, *Albany*, Carl Theobald, *New York*, Belle Thomas, *Tampa, Florida*, Louis Van Hoesen, *Hudson*, John E. Virden, *Bronx*, Henry Wallace, *New York*, James Peter Warbasse, *Brooklyn*, August W. F. Westhoff, *Richmond Hill*, Julius Wolff, *New York*, and Victor L. Zimmermann, *Brooklyn*

84 Executive Session

DR. JOHN J. MASTERSON, *Kings* In view of the extreme importance of the resolutions to be considered this morning, I move that we go into executive session

DR. GEORGE W. KOSMAK I second that motion

There being no discussion, the motion was put to a vote, and was unanimously carried.

SPEAKER BAUER The House is going into executive session Will you check with your noble assistants to make sure that only members are present, Colonel Wentworth? The Chair will assume there will be no objection on the part of the House to the same exceptions being made as were made yesterday in so far as permitting those who are not members of the House to remain for the executive session Hearing no objection, the same exceptions will be made to-day as were made yesterday

COLONEL EDWARD T. WENTWORTH, *Monroe* The House has been cleared

(The House then went into Executive Session, receiving reports of reference committees on certain resolutions)

The following resolution submitted for Living-ton County by Dr. Charles Gullo (*Section 53*) was considered

"WHEREAS, there are people in the State of New York practicing the healing art without having adequate knowledge of the human body, and

"WHEREAS, experience has shown that it is most difficult and often futile to effectively prosecute these people even when they have violated the Medical Practice Act, and

"WHEREAS, it is the duty of Organized Medicine to promulgate medical information and prevent fraudulent and inferior medical service to our people, now, therefore be it

"Resolved, that the House of Delegates of the New York State Medical Society hereby authorizes and directs the President of the New York State Medical Society to present to the Legislature of the State of New York a suitable bill to correct this condition and that such bill shall provide substantially as follows

"Section 1 Definitions, as used in this Article

"The practice of the Healing Art is defined as follows

"A person practices the healing art within the meaning of this article who holds himself out as being able to diagnose, treat, operate, or prescribe for any disease, pain, injury, deficiency, deformity, or physical condition of the human body, and who shall either offer or undertake by any means or method to diag-nose, treat, operate or prescribe for any dis-ease, pain, injury, deficiency, deformity, or physical condition of the same

Public Health News

The Tuberculosis "Must Go" Program

AT THE Annual Conference of State and Local Committees on Tuberculosis and Public Health of the State Charities Aid Association (held at the Hotel Commodore in New York City) the morning of May 21 was devoted to the following program

The First Year of the Program for the Substantial Eradication of Tuberculosis in Upstate New York by 1960—Progress and Next Steps

- 1 From the Point of View of Official Agencies
 - (a) "With Respect to Examination of Family Contacts," JAMES M. BLAKE, M.D., superintendent, Schenectady County Tuberculosis Hospital
 - (b) "With Respect to the Services of a Supervising Nurse," MISS MARION SHEAHAN, R.N., director, Public Health Nursing, State Health Department
 - (c) "With Respect to the Value of Tuberculosis Case and Contact Rosters," S. E. SIMPSON, M.D., superintendent, Jefferson County Sanatorium
 - (d) "With Respect to Clinic Expansion, Location, Housing, Equipment and Personnel," EDWARD X. MIKOL, M.D., Tuberculosis Division, State Health Department
- 2 From the Point of View of Nonofficial Agencies
 - (a) "With Respect to Tuberculosis Case-Finding by Practicing Physicians," PETER IRVING, M.D., secretary, Medical Society of the State of New York
 - (b) "With Respect to the Services of the State and Local Tuberculosis and Health Association," GEORGE J. NELBACH, executive secretary, State Committee
- 3 "How It All Looks to Me at this Stage of the Undertaking," EDWARD S. GODFREY, JR., M.D., state health commissioner
ROBERT E. PLUNKETT, M.D., general superintendent, Tuberculosis Hospitals
Presiding DONALD B. ARMSTRONG, M.D., third vice-president, Metropolitan Life Insurance Company, member, State Executive Committee

The following address was made by Dr. Peter Irving, secretary of the Medical Society of the State of New York.

Case-Finding by Practicing Physicians

THIS new program will, I expect, impress all physicians in active practice in this state as a definite call to bestir themselves more effectively and at the same time more widely in the field of case-finding in tuberculosis. Throughout this century they have felt the obligation to their patients and to the public for early diagnosis and routing of cases to proper care. Now, as I see it, they will be able and glad to do more than they

have hitherto found it possible to accomplish toward these ends.

First, they will feel impelled to follow up the cases they find, into the families concerned, with uninhibited persuasion that family contacts be examined and x-rayed.

Then, they will be free to reach out in a newer fashion—a double fashion. First, they can seek from the tubercular patients and their families the names of individuals with whom the patients have come into close contact outside the home. These can be reported to the health officials together with names of offices where the patients have worked. The doctors can also do their best to get the patients or their families to pass on the suggestion that all these contacts would do well to seek examination and x-ray.

In this freer way, practicing physicians can step up the tempo of case-finding. They will, however, find problems as they go along. Particularly will the contact outside—and even inside the home—be reluctant to be examined and x-rayed. They can be expected to raise special objections to costs they consider unnecessary. Where funds are low—and the bulk of tuberculosis cases are found in the lower income groups—the objection may rest on real inability to pay. For these reasons it would seem an essential factor that all deterrents to examination and x-ray be in some way removed. The practicing physician meets a specific problem in the cost of x-ray which flows primarily from the expense of equipment. The establishment of a principle that x-ray service in the Tuberculosis Control Program be made available to all without direct cost to the patients, to be paid for out of public funds, would result in the practicing physician's task being much more surely and widely successful.

The Council of the Medical Society of the State of New York has been studying these problems carefully for several months. On May 15, 1941, it placed on its records twelve "Suggestions Regarding the Tuberculosis Program." I can best give you its position by reading these—with comment.

1 The responsibility for communicable disease control rests largely with government health officials.

2 This responsibility carries with it the necessity of employing and advocating measures known or thought to be effective in disease control.

These two statements recognize government responsibility for initiation of control measures and, by implication the obligation of practicing physicians to help.

3 Such measures must be reasonable, without causing hardship, and at a cost which will not act as a deterrent. If the cost becomes relatively great, society must find a way.

the Speaker, and nine other members elected by the House of Delegates."

The proposed amendment is to be inserted after the word "speaker," "the Chairman of the Board of Trustees," so that as amended it will read

"the Speaker, the Chairman of the Board of Trustees and nine other members elected by the House of Delegates"

SPEAKER BAUER This is a notice of intention to amend the Constitution, which will lie on the table in the Secretary's hands until next year, when after being published it will come before you for consideration

We will have the report of the Board of Tellers, but first is there any other business to come before the meeting?

(There was no response)

88 Presentation of Past-President Dr Allan A. Jones to the House

SPEAKER BAUER It has been brought to my attention that the oldest past-president of this Society, Dr Allan A. Jones, has just come into the House I think we should have Dr Jones stand

The delegates arose and applauded

PAST-PRESIDENT ALLAN A. JONES I am sure this is a very unexpected welcome on your part, and I appreciate it very much I have watched the proceedings of the Society for many years, and because of such watching I have come to know of what you have been able to accomplish I wish you the best of luck (Applause)

89 Vote of Thanks to the Speaker

DR. GEORGE W. KOSMAK, New York Mr Speaker, the hour has arrived when it may be appropriate to throw a few bouquets, and in order to save embarrassment to the recipient of the bouquets I want to throw I am going to ask the Vice-Speaker to act in your place for a moment, because I want to introduce a motion expressing the sense of the House in the excellent presiding qualities of our Speaker, the courtesy with which he has received the various men who spoke, and in general all the good things that are to be expected from a recipient of this office

I put that in the form of a motion, and I would like to have it put on the record (Applause)

DR. ARTHUR J. BEDELL, Albany I second that motion

The motion was carried by the delegates arising and applauding

SPEAKER BAUER I thank you very much, and I hope you will still feel the same way next year

90 Vote of Thanks to the Committee on Arrangements and Erie County Medical Society

SPEAKER BAUER I think it would be very much in order if someone would make a motion extending the thanks of the House to the Committee on Arrangements and all those who have worked so hard to make this meeting a success

DR. ALFRED M. HELLMAN, New York I should like to make such a motion and include our thanks to the Erie County Medical Society

SPEAKER BAUER I intended to include them in my suggestion. I am sure that does not need any discussion Again, I think we should take a rising vote

The motion was carried by all delegates present arising and applauding

SPEAKER BAUER Has anyone else anything to bring before the House?

(There was no response)

SPEAKER BAUER I remind you again of the dinner tonight, the ladies' hobby show which you are invited to see, the Council meeting at four, and the trustees' meeting at 4 30 this afternoon in the Erie County Medical Society's rooms on the eighteenth floor

91 Vote of Thanks to Chairman of Scientific Committee

DR. THOMAS A. MCGOLDRICK, Kings Mr Speaker, in the distribution of the bouquets at this time it seems especially fitting that the Chairman of the Scientific Committee, Dr Albert F. R. Andresen, on whom has rested the responsibility of the program for the day, and who according to the records deserves full credit and praise for this splendid program, should also receive our praise, which I feel he is entitled to I so move

The motion was seconded, and was carried by the delegates applauding

SPEAKER BAUER All committees having reported, there being no further business to come before this House of Delegates, I declare the 135th Session of the House of Delegates of the Medical Society of the State of New York adjourned sine die

(The session adjourned at 12 30 o'clock, noon)

SCIENCE WINNING THE FIGHT ON CANCER

An increase of nearly 30 per cent in fifteen years in cures of breast cancer was reported on March 30 by Dr Frank E. Adair of Memorial Hospital, chairman of the executive committee, American Society for the Control of Cancer

The increase, according to Dr Adair, is the result of the educational campaign by the society and its Women's Field Army on the importance of early diagnosis of cancer through periodic physical examinations and the avoidance of delay in reporting to a qualified physician any suspicious lump on the breast as soon as it is discovered

The data cover cases of women who have had no recurrence of the disease in five years

"Women have been told that cancer must be taken in its early stages to be cured, and they are taking advantage of this information," Dr Adair said "In 1920 the average delay in a breast case from the time a patient noticed a lump until she came to the hospital was eleven months and seven days In 1940 this lapse of time had been cut more than in half, to four months and four days

"In primary operable cancer of the breast in 1920 we secured 37 4 per cent five-year cures, in 1935, the latest year which we may use as a basis for calculating our five-year cure, we had raised the rate to 47 5 per cent, a gain of nearly 30 per cent in fifteen years"

Medical News

County News

Albany County

Dr George T Pack, of Cornell Medical College and Memorial Hospital, New York City, addressed the county society on May 28 on "Cancer of the Stomach."

Bronx County

The Bronx Gynecological and Obstetrical Society listened to the following program on May 26 Case Reports—(1) "Meigs Tumor," by Dr F A Wurzbach, Jr, and (2) "Repeated Bleeding During Pregnancy Due to Multiple Fibroids (2 Cases)," by Dr David Deutschman, Papers—(1) "Auto-Blood Injections in the Treatment of Functional Uterine Bleeding," by Dr Geza Weitzner, and (2) "Effects of Human Pregnancy Serum in Pregnant Animals," by Drs S S Rosenfeld, Bernard Lapan, and Dr Harry Baron.

Broome County

At the meeting of the county society on May 13, Dr James E Perkins, director, Division of Communicable Diseases, New York State Department of Health, presented the analysis of the Binghamton Pertussis study which was recently completed. Lantern slides were shown.

Radio speakers in May were Mrs John Robertson, Dr D G Dudley, and Dr M C Snyder

A joint meeting of the county society and the Binghamton Academy of Medicine, was held on May 26 in the Binghamton State Hospital assembly hall.

Colonel Harry A. Steckel, M.D., chairman of the committee on military mobilization of the American Psychiatric Association, spoke on "The Role of Psychiatry in the Present Military Emergency."

"Get their story," was the advice for a more thorough diagnosis of patients, by Dr Walter S Alvarez, Mayo Clinic surgeon and professor at the University of Minnesota, in an address before 325 Binghamton area physicians in Phelps Hall at City Hospital, on May 15

His talk, which climaxed Binghamton's observance of Hospital Day, was on "Puzzling Types of Abdominal Pain." The speaker called for more thorough diagnosis and "less dependency on the laboratory report." He decried the tendency to "skim over" the diagnosis—particularly on the part of "younger men"—and said that to obtain detailed stories of ailments from patients would be "invaluable" in planning action in cases where internal distress is evident

The first copy of the manual of the county society, which for many years was stored in the cornerstone of the old Binghamton Central High School building, has found its way into the Broome County Historical Section.

Printed in 1870, the volume is in a nearly perfect state of preservation, and reveals details of the first society, which was headed by Dr Daniel A. Wheeler. Binghamton was then Chenango Point

The pamphlet was taken from the cornerstone when the building was razed and was presented to Dr Blinn A. Buell in 1940, when he was head of the society

It contains the chronologic list of members from 1806 through 1870 and gives a schedule of fees that was something to behold in those days

Columbia County

Dr Willis W Lasher, of the Reconstruction Hospital, New York City, and formerly of Germantown, was guest speaker at the meeting of the county society at the Taconic Inn, Copake Falls, on May 13. He spoke on "Some Affections of the Knee Joint." Dr R. P. Harris presided

Erie County

At the meeting of the county society on May 27, Dr Critchlow reported that to date the Western New York Medical Plan, Inc., has paid 1,002 claims, and for the last quarter the amount will be over \$3,000

Dr Bauckus stated that he had been appointed to represent Erie County on a committee to meet with the Farm Security Administration. This latter organization will make loans to poor farm families which will enable them to subscribe for medical expense indemnity insurance. It was the opinion of the committee that the question should be brought before the organization of the Rural Physicians of Erie County. Mr Metzger of the Western New York Medical Plan and a representative of the Farm Security Administration were present at the meeting and the situation was thoroughly discussed. The rural physicians voted to go along with this plan of medical expense indemnity insurance, which is to be taken care of through the Western New York Medical Plan. Dr Bauckus recommended that inasmuch as the rural physicians organization has approved the plan and that the Society approved the Western New York Medical Plan, the county society approve it. It was moved, seconded, and carried that the society accept this recommendation.

The Buffalo Academy of Medicine will have its annual golf and field day at the Orchard Park Golf Club on Thursday, July 10, with dinner at 7 00 p m

Franklin County

The semi-annual meeting of the county society was held June 4, at the John Black Memorial Room, at Saranac Lake

Medical problems relating to the Selective Service system as affecting upper New York State were discussed by Col. Louis H. Gause, M.C., medical advisor, Selective Service, New York State Headquarters

Kings County

The following scientific program was given at the meeting of the county society on May 20 (a) "The Diagnosis and Treatment of Lesions of the Cranial Nerves," by Dr Walter E. Dandy

which is usually sharing cost through government taxation

The element of cost of new measures is here recognized—and that, if necessary, the burden may be spread by use of public funds. Now comes the estimate of the cost of the particular measure of present concern in

4 The per capita cost of x-ray examination for tuberculosis diagnosis is not a financial burden to some people, but to the *great majority* it is

5 X-ray examination is necessary as a part of the Tuberculosis Control Program and *must be made available*

6 X-ray examination necessitates expensive equipment and specially trained physicians

Now comes the most significant, practical adoption of a new and definite stand in

7 Patients who, in the opinion of the health officer or his representative, for various reasons (contacts, etc.) should have a thorough physical examination including x-ray, as a part of the Tuberculosis Control Program, should be rendered x-ray service without direct cost to the patients

I will not go into the definition of the term "a thorough physical examination" except to say that it must be sufficient to ensure a diagnosis. The stress here is on x-ray examinations at no cost to contacts. This suggestion goes on to set up safeguards by saying

All such examinations should be done only on the written order of the health officer or his representative, or the order of the family physician, and approved by the health officer, or his representative. The x-ray examinations are to be made only by physicians licensed to practice medicine in the State of New York

8 All x-ray examinations at tuberculosis hospitals and clinics should be done without direct cost to the patients

9 X-ray examinations, when ordered as a part of the Tuberculosis Control Program by the health officer and performed by a private physician, *should be paid for from public funds*

10 No patients, except in emergency, should be examined at tuberculosis hospitals and clinics without a written order from the health officer or his representative

These three statements relate to procedure. I would call your special attention to the provision for payment from public funds for x-rays of these contacts by private physicians. In other words, it should be recognized that the practicing roentgenologist has a place in the picture as well as the tuberculosis hospital and clinic

11 In order to prevent lack of service and to encourage active participation of local health units, part or all of the cost of x-ray examinations *should be borne through state aid*

This, again, is recognition of public responsibility

12 To avoid misunderstandings regarding interpretation of x-ray findings, techniques, and other matters, provision should be made for the establishment of an *Advisory Board on x-ray procedures*. Such a Board should be composed of radiologists, the majority of whom are in the private practice of medicine. The members of this Board *should be compensated by and function as a part of the State Department of Health*

This is a new idea based on the desire to integrate the work of public officials and practicing physicians to the end that the case-finding be more complete than it has been before

If these suggestions can be put into operation, it is the belief of the Council that the practicing physicians of the state will do their full part. The Medical Society of the State of New York will do everything to encourage their success

PITFALLS OF HOME DIATHERMY

"Diathermy for use in the home has been extravagantly promoted by various agencies," the *Journal of the American Medical Association* for April 5 declares in an editorial

"The *Journal* has emphasized repeatedly that any kind of self treatment without scientific diagnosis may be hazardous because it permits neglect of serious conditions that may require professional attention. In several cities, firms have come into being practically overnight, advertised in the daily papers, broadcast over the radio, released high pressure salesmen to sell or rent their products, then they have suddenly disappeared, although in some instances the promoters have appeared in the same role in new firms which repeated this program. Some of these instruments promulgated to the public have been efficient, others have not! Apparatus for diathermy should have sufficient output to heat the tissues, since heat is the only therapy it provides for which critical evidence is available. If the instrument is efficient, it may be dangerous unless its use is supervised by a trained observer. If the machine is inefficient and of low power output, it will not heat the tissues and will be without therapeutic effect."

WHAT BECAME OF YOUR PRACTICE

If you are one of those who think that the medical "business" is not what it used to be, look over this list of medical services that are actually being rendered in Columbus

Orthopedics by osteopaths, chiropractors, and shoe stores

Surgery by osteopaths

Refraction by optometrists

Over-the-counter prescribing by druggists

Psychiatric advice by psychologists

Pathology by lay laboratories

Rupture reduction and treatment by rupture clinics and truss companies

Physical therapy by mechano-therapists and chiropractors

Agglutination tests for paternity by geneticists

Speech difficulties, with the use of x-ray, by a nonmedical clinic

Dietary advice by faddists

Weight reduction, colonic irrigations, treatment of colds, arthritis, etc., by bath houses

Self-prescription through patent medicine advertisements

The poachers don't seem to have missed much, have they?

—*Bulletin, Columbus Academy of Medicine*

Wayne County

The county society met on June 10 at the Newark Country Club, and listened to a lecture by Dr Nathan P Sears, professor of clinical gynecology at Syracuse University, on "Carcinoma of the Female Genitalia."

Westchester County

Dr Matthias Nicoll, Jr, aged 73, of Rye, who died on May 13, was State Commissioner of Health from 1923 to 1930.

Colonel Edward H Marsh, former county deputy health commissioner, talked on "A Doctor Looks at Mobilization" before forty members at a closed meeting of the White Plains Medical Society at Westchester Hills Golf Club, on May 13.

Wyoming County

Dr Willard L Chapin, of Perry, and Dr Valente, of Strykersville, both reserve officers in the medical corps, have been cited for deferment from Army duty at this time by the County Medical Defense Board, of which Dr Oliver T Ghent, of Warsaw, is chairman. The board is composed of members of the county society.

The reason in both instances is the belief that their departure from their communities would be contrary to public interest from the health standpoint.

In the case of Dr Valente, deferment is recommended because he is the only physician in his community and his departure would leave the village without medical service.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
A. Newell Benedict	59	Cornell	June 3	Yonkers
William F Coombs	47	Syracuse	May 22	Syracuse and Cazenovia
Alfred C DuPont	74	N Y Univ	May 30	Manhattan
Herman A Ehrmann	76	P & S N Y	June 2	Manhattan
Albert C Griffin	86	Albany	February 20	Whitestone
Charles W House	79	Ecl Conn	June 2	Auburn
John Hutchinson	81	N Y Hom	May 29	Manhattan
Richard Levy	35	Hamburg	May 20	Jackson Heights
Esteve S Mars	73	Meharry	June 4	Brooklyn
George Pollack	32	London	March 21	Brooklyn
Oscar H. Rogers	83	P & S N Y	May 17	Yonkers
Morris Rosentover	68	Bell	March 30	Manhattan
John L Sheils	68	P & S N Y	May 23	Bronx

FAITH AND PILLS

Yesterday I heard of a remarkable young doctor who offended a patient by refusing to give her any medicine. He said he didn't know what was the matter with her, and he couldn't prescribe medicine without seeing some reason for it.

The grim honesty of that attitude is a rebuke to quacks, but it may not always be wise.

One bright Sunday morning, years ago, I rode downtown with a kindly old doctor who was both a scientist and a philosopher. We hadn't gone far when a lady pushing a baby carriage signaled the doctor to stop and asked him to examine her ailing infant.

Doc took the child on his knee and played with it for a minute or two and then began to write a prescription.

"Give this as directed," he said, "and if the baby isn't better by tomorrow morning, bring it to my office."

This seemed a miraculous diagnosis, and as we drove on I asked Doc what was wrong.

"Not a thing in the world," he answered cheerfully. "The medicine was to pacify the mother. It won't hurt the baby, and if there is anything wrong, it will develop by tomorrow morning so I can tell what it is. The mother thinks there's something wrong, and if I had done nothing for the baby, she would have taken it to another doctor."

The old-time medical doctor may have been short of learning, but he knew human nature.

The recent epidemic of doctor's autobiographies makes it clear that the old-timers, for all their scorn of faith cures, cured by faith without realizing it. Both the doctor and his patient believed in the curative value of medicine, and the doctor gave it generously—a different kind for each symptom. The "ease his pain and wash him out" theory worked all right, unless the patient had appendicitis, but the other dosings probably cured nobody.

How, then, were they cured? By nature, plus faith. People believed in their doctor and felt safe when he stepped inside the door. If he had given them flour pills, his service still would have been worth all he received, for he took away their fears and gave them the hope and confidence they needed to get well.

Modern doctors give little medicine. Doubtless they would feel like quacks if they gave flour pills when the patient's symptoms seemed to call for nothing more. But human nature has not changed. We still live by faith. And half the value of medical science will be gone when cures depend on medicine alone.—Robert Quillen, in *Foundain Inn Tribune*, quoted in *Clinical Medicine*.

F.A.C.S., Baltimore (b) "The Essential Systemic Nature of Acute Lupus Erythematosus and Other Generalized Diseases of the Skin," by Dr Paul Klemperer, Manhattan

The Brooklyn Thoracic Society met on May 16, with this program (1) "Bronchial Catheterization and Bronchography," by Dr Samuel A. Thompson, New York City, with the discussion by Drs Harry Meyersburg and Ralph Harloe, (2) "Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis" (sound motion picture), by Dr James S. Edlin, New York City, with a general discussion.

Monroe County

The president of the State Society, at Rochester, on May 29, urged the Federal Government to enlist in the national defense effort foreign physicians who have been driven from their homes to this country, as reported by the Associated Press.

Asserting that 9,000 medical officers will be needed during the next year, Dr Samuel J. Kopetzky, who also is medical director of Selective Service in New York City, told the county society in a prepared address "There are about 2,500 medical men of foreign extraction, driven by persecution from their native lands, who are located in various parts of this state. The authorities should survey their equipment and qualifications, and place them, too, at work in the defense program."

Pointing out that organized medicine has "pledged its facilities to the Federal Government in supplying the medical needs of the armed forces," Dr Kopetzky declared, "this united effort is no mere lip service, it is an actual contribution."

"We as doctors," he said, "must take the yardstick of quality of medical care, and measure every possible advance in the name of our national defense program, and see to it that however much necessity exists because of instant situations this shall not break down the employment of our constant yardstick."

"It should be our duty to so plan measures integrating community medical care in the defense program that they carry within themselves their discontinuance or dissolution when the present pertinent emergency shall have passed and become history."

Nassau County

Dr Charles W. Martin, of Woodmere, succeeded Dr Aaron L. Higgins, of Rockville Centre, as president of the county society on May 27, at a meeting at the Cathedral House, Garden City. Dr Martin was president-elect for the past year.

The annual election of officers resulted as follows: president-elect, Everett N. Whitcomb, Port Washington, vice-president, N. H. Robin, Hempstead, secretary-treasurer, E. Kenneth Horton, Rockville Centre, board of censors: William C. Atwell, Great Neck, John M. Galbraith, Glen Cove, Stephen F. Gerde, Freeport, A. M. Goldman, Rockville Centre, Charles Edwin Woods, Westbury Workmen's Compensation Board (2 years) Wright F. Lewis, Freeport, Ruel L. Alden, Hempstead, James L. Winemiller, Great Neck. Delegate to State Society (2 years) Louis A. Van Kleeck, Manhasset.

New York County

A testimonial dinner, sponsored by the county society, was given on June 12 at the Hotel Plaza, in honor of Dr Samuel J. Kopetzky, president of the State Society. Among the speakers was Col Arthur J. McDermott, director, Selective Service for New York.

Dr Arnold H. Knapp, of New York City, is the recipient this year of the Leslie Dana Gold Medal awarded annually for outstanding achievement in the prevention of blindness and the conservation of vision. The award is given on the recommendation of the Association for Research in Ophthalmology.

Dr Knapp is editor-in-chief of the *Archives of Ophthalmology* and professor emeritus of ophthalmology in the College of Physicians and Surgeons of Columbia University. He is also consultant to the Eye Institute of the Columbia Presbyterian Medical Center and is one of the three directors of the Knapp Foundation in Ophthalmology of Columbia University.

The conditions of the Leslie Dana Medal award set forth that it is made for "long meritorious service in the conservation of vision in the prevention and cure of diseases dangerous to eyesight, research and instruction in ophthalmology and allied subjects, social service for the control of eye diseases, and special discoveries in the domain of general science or medicine of exceptional importance in conservation of vision."

Oneida County

Dr Conway A. Frost, aged 74, of Utica, who died on May 10, was a past-president of the county society.

Queens County

A tentative program has been drawn up for a course in allergy to be given at the county society in October. Arrangements are being completed through the chairman of the State Society's Committee on Public Health and Education. It is requested that those interested communicate with the chairman of the Graduate Education Committee. Attendance will be gratis.

Schenectady County

The semi-annual meeting of the county society was held at the Mohawk Golf Club on June 5, with a luncheon at noon followed by golf, tennis, putting matches, and bridge.

The business meeting was held at 5:30 with a dinner following.

Dr D. Glen Smith and his all-doctor orchestra entertained after dinner. Dr Charles E. Wiedeman is president of the society.

Tioga County

The quarterly meeting of the county society was held on June 3, at the Green Lantern Inn, following dinner. Dr Charles J. V. Redding, of Owego, presided at the meeting, which was attended by sixteen members.

The speaker was Dr J. Zillhardt, of Johnson City, who spoke on "Blood Transfusions and Blood Banks." Dr Zillhardt is internist on the medical staff of the Endicott-Johnson Corporation.

shot wounds Dependents will receive one-half of the full allowance for surgery and the full amounts for the benefits first listed

Plan I costs subscribers \$1.40 and Plan II is offered for 80 cents a month for gainfully employed persons The benefits are increasingly greater than offered by the new plan.

Harold C Stephenson, managing director of the Hospital Plan and the Medical and Surgical Care Plan, said, in announcing Plan III, that it was the first of its type to be sponsored by physicians and offered at such a low price

He explained that a husband and wife could enroll for 99 cents a month, while all children in a family, regardless of number, between the ages of 1 and 16 were covered for one payment of 39 cents a month

Nonprofessional employees of the Methodist Hospital of Brooklyn, members of the State, County and Municipal Workers Union, C I O, are prepared to present demands to the hospital management, calling for union recognition, \$60 a month minimum pay, two weeks' paid vacation a year and two weeks' sick leave, and eight paid holidays a year, says the Brooklyn Eagle

Dr Chester A Marshall, director of the hospital, has appealed against what he called an impending strike at the hospital, but David Allen, secretary-treasurer of the New York area of the union, has declared that no strike has been threatened or suggested

The citizens of Barnbridge, Guilford, Masonville, Sidney, and Unadilla have approved a plan to join in erecting a hospital, the location not yet selected.

The estimated cost of the hospital building, which will contain thirty-seven beds, is from \$80,000 to \$100,000 and for the equipment which is needed in a modern hospital the cost is estimated to be from \$50,000 to \$60,000

An increase in rates for county welfare cases at the Lockport City Hospital has been reported to the Board of Supervisors by Miss Nettie MacMillan, superintendent

Where \$3.50 a day has been paid, the hospital managers have asked \$4.50 plus extras or \$5 a day flat rate "Greatly increased cost of maintenance" was given as the reason for the request The communication was referred to the welfare committee

Ellis Hospital, Schenectady, has raised its room rates by 50 cents to obtain much-needed revenue

The total loss sustained by Vassar Brothers Hospital as the result of free or less-than-cost care given county patients over a period of eighteen months from November 1, 1939, to April 30, 1941, has been announced as \$39,234

Improvements

The cornerstone of the new million-dollar addition to the Roosevelt Hospital, New York City, was laid on May 21

Plans to erect a new building for the Downtown Hospital and Pan-American Clinic, New York City, formerly known as Broad Street Hospital, are under consideration

Ground was broken on May 28 for the new million-dollar, 375-bed building of St Mary's Hospital at Bulls Head, Rochester

Due to the increase in population in the Westchester and Parkchester areas of the Bronx, Westchester Square Hospital is erecting a four-story extension to the present building

Illion Hospital contemplates a \$115,000 addition

Seventeen two and three-story brick dwellings adjoining the Cumberland Hospital located in the center of the Fort Greene Housing Project in Brooklyn are to be demolished soon by WPA to clear the immediate area for future expansion of that institution, Major Irving V A. Huie, New York City WPA administrator, announces The work will be performed at the request of the New York City Housing Authority

The Lee Memorial Hospital at Fulton is raising \$85,000 for expansion.

St Francis Hospital, Poughkeepsie, is adding a new wing, with other enlargements and improvements

The Brooks Hospital at Dunkirk plans an addition.

A movement is on for a \$50,000 addition to the Canastota Hospital

OUR DICTATORS REVEALED

The dictators of organized medicine are the practitioners of medicine, every one of whom has a voice which will be heard when it expresses a

constructive thought, even though it express adverse criticism —N B Van Etten MD
president of the A M A

Hospital News

Hospitals Report Shortage of Drugs

SCARCITY of essential chemical and pharmaceutical supplies, attributed to diversion of the basic chemicals to industrial uses in the defense program, is reported by both private hospitals and the New York City Purchasing Office, Division of Chemical and Drug Purchases, says the *New York Times*. Smaller manufacturers of medicinal supplies reported that they were faced with shutdowns unless priority ratings of defense contractors, shifting basic chemicals from pharmaceutical to industrial uses were modified. Druggists, although still able to buy patent medicines with little difficulty, were finding it hard to purchase several crude drugs.

Manufacturers of basic chemicals said the situation was one for which they were unable to prepare. They had carefully built up systems allocating their available production among regular customers and, while this did not fully meet the needs of customers, no one was being forced to go without essential materials. This worked rather well, manufacturers said, until the priority rating system of the OPM went into effect. Under this system, any defense contractor may get a priority rating that requires his suppliers to fill the defense contractor's needs above those of all other customers, without regard even to prior commitments to regular customers.

Typical of the products affected by the defense log jam, producers said, was methanol and its product, formaldehyde. These are used extensively in the manufacture of pharmaceuticals and also are important in production of resins from which plastics are made, and the plastics are getting the priority ratings.

Zinc products used for medical purposes were increasingly hard to buy, according to makers of ointments and similar products. With all available zinc going into munitions and defense production, zinc oxide and zinc stearate production has been cut sharply.

In addition to the interruption of pharmaceutical supplies due to diversion of the chemicals to industrial uses in the defense program, both drugstores and hospitals have experienced a growing shortage of a number of imported products, notably botanicals, essential oils, and herbs. Codliver oil, normally imported from Norway, is hard to buy, and prices are nearly three times the prewar levels.

Interns "Gone with the Draft"

NEW YORK City hospitals will face a shortage of interns by next autumn as medical graduates are called to meet the increasing demands for medical officers in the Army, according to Dr Willard Cole Rappleye, commissioner of Hospitals, says the *New York Post*.

For 6,700 internships in hospitals of the country there are annually about 5,000 medical graduates, he explained, but the extra internships have been taken up until the present by second-term interns. These are young men who, having finished their internship in a smaller hospital, go

for a second internship for specialized training in large medical centers.

Now, with the Army calling for doctors, Dr Rappleye says, these second-term interns are being called to the service, leaving hospitals short-staffed.

Recent rulings of the Selective Service System allow medical students deferment until after their internship, but will prevent young doctors from taking more than one course of intern study, as men of draft age are not eligible for second internships.

New York City will feel the shortage most acutely, for about one-sixth of all medical graduates of the country are taken into New York hospitals for their postgraduate training. About one-fifth of the nation's resident positions for doctors in hospitals are provided by local hospitals. There are between 1,600 and 1,700 internships in the local hospitals. Just how many young men will be available to fill these posts during the coming year is not yet known.

However, there is no danger of a shortage of practicing physicians. There are now twice as many physicians per unit of population in the United States as in any other country in the world.

Newsy Notes

MOIR P. Tanner of the Children's Hospital, Buffalo, was elected president of the Hospital Association of New York State on May 22 at a meeting at the Hotel Pennsylvania, New York City. David Q. Hammond of Flower Hospital was elected first vice-president and Harold A. Grumm, of Buffalo, second vice-president. Austin J. Shoneke of New Rochelle Hospital was named treasurer.

• • •

An emergency plan for the medical defense of New York City, dividing the city into twelve zones and setting up a hospital as key center for each zone, is declared ready for functioning by Hospitals Commissioner Willard C. Rappleye.

Cooperating will be forty private hospitals, ready to send ambulances or evacuate patients, while crews of specially trained doctors and nurses will be on hand for swift first-aid treatment. In addition, 12,000 Sanitation Department employees are being mobilized by acting Commissioner John B. Morton.

• • •

A third plan offering benefits at a cost of 48 cents a month has been announced by the Medical and Surgical Care Plan, which cooperates with the Hospital Plan, Inc., of Utica.

Under the new plan the gainfully employed subscriber and all dependents will be entitled to an allowance of \$10 for anesthesia, \$5.00 toward x-rays, \$5.00 toward special laboratory, basal metabolism, or electrocardiograms, and, in addition, \$200 for each gainfully employed person toward a list of eighty-three surgical procedures that include fractures and the treatment of gun-

presence of the needle sooner than he did, the Court said in part

"The total length of time which elapsed between the operation, and giving plaintiff the information concerning the needle's presence, was six weeks. More than two of these were spent in the hospital and when she left it she was removed in an ambulance. Thereafter recovery seems to have been rapid, and within a little more than three weeks after she returned to her home, and within ten days after she first appears to have been able to go to defendant's office, he informed her fully concerning the facts and the necessity for removal. We cannot say as a matter of law that defendant should have informed her earlier, or that a jury would be justified in finding that he should have done so. He acted with reasonable promptness in view of all the circumstances and a verdict that it was negligent for him not to do so earlier, on the

evidence here presented, hardly could be sustained. The mere fact that plaintiff suffered pain from the needle during the period prior to its removal does not make the failure to remove it earlier negligent. In addition to the shortness of time, it must be remembered that her physical condition for at least ten days following the operation was serious, her tendency toward nervousness was high, and the location of the needle in the fatty tissue made danger of infection or movement to a zone of danger slight. In these circumstances there was no need for haste, and there may have been real need for delay sufficient to assure that excitement or psychological disturbance incident to the removal would not cause a relapse in the patient's physical recovery. In the light of these facts the evidence indicates that the delay was not negligent rather than the contrary."

Inquiries

YOUR counsel recently received the following inquiry

"Dear Mr Brosnan

"At one of our intern conferences the question came up. Is an intern, as an individual, liable to be sued for malpractice for any act performed while serving as an intern in the hospital? If sued, is he personally liable for any judgment obtained or is the hospital liable for a judgment obtained?"

Very truly yours,"

Your counsel's reply was as follows

"Dear Doctor

"I acknowledge receipt of your letter in which you ask certain questions which have arisen at one of your intern conferences

"Your first question is 'Is an intern as an individual liable to be sued for malpractice for any act performed while serving as an intern in the hospital?' There is no question but that an intern may be personally sued for malpractice in connection with the personal care by him of a patient while serving as an intern. In my experience, in certain instances, interns have in fact been named as party defendants in malpractice actions. They are responsible to patients personally treated by them under the same rules of law as would be physicians who are members of the attending staff of the hospital. Undoubtedly, the reason why interns are not more frequently sued is that attorneys realize that interns are rarely financially responsible

"Your second question is, 'If sued, is he personally liable for any judgment obtained, or is the hospital liable for any judgment obtained?' If a judgment is rendered against an intern in a malpractice action, which is a perfectly possible outcome of such an action, the judgment would be collectible from the intern personally. Unless the judgment were directly rendered against the hospital as a party defendant, it would not be responsible for the judgment. In other words, a hospital is under no legal obligation to indemnify an intern in the event

of a malpractice judgment rendered against him personally

"It should also be pointed out that in ordinary cases, when a hospital is directly sued on the theory that one of its interns committed malpractice in the care of a patient, a hospital is not ordinarily liable for the negligent acts of the intern, provided it has used due care in seeing that the intern was properly qualified to act as an intern, and further provided that the hospital did not delegate to the intern duties which were not properly within the scope of an intern's duty

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"To the general rule, however, there may be

Medicolegal

LORENZ J. BROSNAN, Esq.

Counsel, Medical Society of the State of New York

Liability of Surgeon in Needle Breaking Case

AN INTERESTING case was decided a short time ago in a nearby jurisdiction which involved the legal consequences of the breaking of a needle under circumstances that undoubtedly have arisen in numerous instances.*

On January 24 the plaintiff underwent a gall-bladder operation performed by Dr. S, the defendant in the case. After the operation she was taken to her room, and Dr. S concluded that her immediate postoperative condition was such that she required the administration of a saline and glucose solution by hypodermoclysis. He instructed an intern, Dr. P, who was associated with the hospital staff, to do the actual work of administering the solution. Dr. P proceeded to do so before the patient regained her consciousness from the anesthetic. He utilized equipment furnished by the hospital. It seems that the lights had been dimmed in the patient's room and were not brightened during the injection. The intern inserted one of the needles under the armpit into the right side of the patient's body and it broke off at the hub and left a segment two inches in length in the tissues.

The intern, Dr. P, examined the broken hub and found, as he testified on the trial, that it was rusty inside and, he felt, latently defective. He tried to retrieve the broken fragment himself and with the assistance of a Dr. M, whose position was that of resident surgeon. But such efforts were of no avail, so the operating surgeon, Dr. S, was summoned. It was the conclusion of Dr. S, after examination, to temporarily allow the needle to remain where it was.

The patient had certain complaints of pain in her side for the next six weeks at intervals, and on March 7 she was told by defendant about the needle. She sought the advice of another doctor and in two days she returned to Dr. S, who operated and extracted the needle. It was rusty when removed. After that the patient continued to seek medical care with reference to pains in her side.

The patient sued the surgeon, Dr. S, charging him with malpractice both in connection with the breaking of the needle in the first place, and in connection with the alleged failure to remove it promptly. Upon the trial the proof showed substantially the fact situation outlined above. There was no medical testimony that defendant's treatment was contrary to proper and accepted practice. The trial court directed the jury to return a verdict for the defendant on the following grounds: "(1) defendant was not responsible for the negligence of the intern, if he was negligent, since plaintiff failed to prove that Dr. P was in defendant's employ, (2) plaintiff had failed to prove that defendant's treatment after the needle had broken off in plaintiff's body was

not in accordance with the standard of physicians practicing in the district."

The plaintiff appealed, but the Appellate Court affirmed the judgment in favor of the doctor. In its opinion the Court said in part:

"There is authority for the view that an operating surgeon is liable for the negligence of hospital employees while actually assisting him in the operating room. But where employees of the hospital are negligent in carrying out the surgeon's instructions as to treatment after the operation, the overwhelming weight of authority holds that the surgeon is not liable in the absence of a showing that he was negligent in giving the instructions or selecting the persons to carry them out, that he was present and could have avoided the injury by exercising due care, or that his special contract relative to the negligent employee was such as to make the doctrine of *respondet superior* applicable. These cases clearly hold that the mere fact that the surgeon gives the instructions, or even specially designates the particular employee who is to carry out the instructions, does not give rise to a master-servant relationship. Part of the service furnished to the patient, and charged for by the hospital, is the assistance of nurses, interns, and attendants in caring for the patient after the operation, pursuant to instructions given by the operating surgeon. They perform the duty of their employer (the hospital) to the patient when they carry out the instructions of the doctor. Such evidence as there is on the point indicates that it was part of the normal duties of interns at E Hospital to give hypodermoclyses after operations. There is no suggestion that it is the sort of thing which the operating surgeon must do himself, that it is not customary to have interns do it, or that defendant expressly or impliedly contracted to perform it himself.

"It follows that defendant's giving instructions to the intern to administer a hypodermoclysis did not alter the master-servant relationship between the hospital and the intern, and did not create an employment contract or relation between defendant and the intern. The fact that defendant's instructions related to a 'medical measure' rather than to 'usual nursing measures' cannot in itself create an employment relation. It is not suggested that defendant was negligent in giving his instructions, or in assigning the duty to the intern, and, as we hold the doctrine of *respondet superior* is not applicable, we need not decide whether the intern, Dr. P, was negligent."

With reference to the contention that defendant had been negligent in not disclosing the

* *Hohenthal vs. Smith* 4 Neg. Cas. 1941 p. 258

presence of the needle sooner than he did, the Court said in part

"The total length of time which elapsed between the operation, and giving plaintiff the information concerning the needle's presence, was six weeks. More than two of these were spent in the hospital and when she left it she was removed in an ambulance. Thereafter recovery seems to have been rapid, and within a little more than three weeks after she returned to her home, and within ten days after she first appears to have been able to go to defendant's office, he informed her fully concerning the facts and the necessity for removal. We cannot say as a matter of law that defendant should have informed her earlier, or that a jury would be justified in finding that he should have done so. He acted with reasonable promptness in view of all the circumstances and a verdict that it was negligent for him not to do so earlier, on the

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"To the general rule, however, there may be

exceptions as each case must be determined on its own facts. For this reason it is not possible in advance of the facts of any given case to say

whether responsibility would attach to you or not

Very truly yours,"

NEW M D'S TO BE LIEUTENANTS

"All senior medical students graduating from fully accredited medical schools in the United States this spring will be afforded the opportunity of being appointed first lieutenants in the Medical Corps Reserve of the Army," the *Journal of the American Medical Association* for April 19 reports in its Medical Preparedness Section. "The students who did not pursue formal instruction in the Reserve Officer's Training Corps will be eligible for appointment in the Medical Corps Reserve on a par with those students who did have the advantage of such instruction.

"These appointments will be made by the War Department on the recommendation of the dean of each approved medical school and on his certification that the applicant will be granted the degree of doctor of medicine on a specified date. At those schools which require a hospital internship for such degree, appointment will be made on certified evidence of the prospective successful completion of the prescribed four-year course of medical instruction. Commissions and letters of appointment will be delivered on graduation. The newly commissioned Medical Reserve officer should then present his letter of appointment to his local Selective Service board for reclassification.

"No medical Reserve officer is considered eligible for extended active duty until he shall have completed at least one year of postgraduate hospital internship. Therefore, members of this year's graduating class who are appointed in the Medical Corps Reserve, either through medical units of the R O T C or under the aforementioned procedure, will not be available for active duty until July, 1942. Deferment of such duty beyond that time will depend on the current requirement for medical officers.

"In view of the anticipated annual demand for approximately four thousand Reserve medical officers to replace those who have completed twelve months' training and service, it is doubtful that such deferments will be possible.

"The War Department approved appointment of senior medical students on February 18, and appropriate instructions were directed to the commanding general of each corps area. The deans of the several approved medical schools will receive complete instructions, together with appropriate application blanks, in the near future from the commanding general of the corps area in which the institution is located."

REFUGEE PHYSICIANS

Dr Alfred M. Hellman, president of the New York County Medical Society, writes to the *New York Tribune* to reply to another correspondent on the subject of refugee physicians as follows:

In your "Letters to the Editor" column you published on March 24 a communication signed "Medico" in which the writer complained that refugee physicians are supplanting other physicians in New York City, and notably so in the Borough of Manhattan. Since the writer of this letter referred to the membership of the Medical Society of the County of New York, I trust you will permit me to comment on this matter.

To begin with, we need to bear in mind certain basic facts. There are in the Borough of Manhattan, all told, approximately 8,000 physicians. The population of Manhattan as given is 1,871,474. This establishes a ratio of one physician to every 221 individuals. The medical schools in Manhattan graduate annually approximately 350 men and women.

These figures are significant, for it is against them that we must set the facts bearing on the refugee physicians, who, having passed the state board examination of the Regents of the State of New York, are licensed to practice in New York. Full citizenship is not a prerequisite for licensure by the Department of Education in any of the professions other than law.

As to the application by refugee physicians for admission to membership in the Medical Society of the County of New York, the following figures are pertinent. During the year 1940 the number of members elected were 283, of these only 82 were refugee physicians. Ten years ago, i.e., in 1930, the total admission to the society was 198.

That "Medico" found thirty-one refugee physicians among the list of forty-three applicants for admission to the Medical Society of the County of New York may be accounted for in part by the fact that the applications of refugee physicians for membership in the Medical Society of the County of New York are published thrice before they are acted on. While it is true that "many capable American physicians who have practiced in New York are steadily losing patients," it is not at all reasonable to charge these conditions to the entrance into our community of refugee physicians. The reason must be sought for elsewhere.

DON'T LET IT DIE

We know that in private practice, faith plays a great part in cure when it overcomes fear. This faith causes the patient to follow his physician's bidding and can only be found where the present type of practice prevails.—B J. Banton, M D, president, *Minnesota State Medical Association*

COLLEGE DREAMLAND

Doctor (examining life insurance prospect)
"Do you ever talk in your sleep?"

Prospect "No, but I often talk in other people's sleep."

Doctor "But how can that be?"

Prospect "I'm a college professor."

—*Health Digest*

...nascent **OXYGEN** Therapy for **LEUKORRHEA**

CLINICALLY TESTED*

CONCLUSIONS "Ozomide of olive oil in olive oil is effective in the treatment of leukorrhea in general (a) it eliminates unpleasant odor of discharge, (b) it cuts down or eliminates the irritation inside and without the vagina, (c) it reduces the quantity and density of the discharge, including that following cauterization

"It is non-irritating and non-toxic in contradiction to the arsenic and picrate preparations, equally effective and actually soothing, especially (a) in the infantile vagina, (b) in the senile vagina, (c) in trichomonas vaginalis vaginitis of pregnancy "

SAFE, SIMPLE, REMARKABLY EFFECTIVE. Liquid for office use. Capsules for prescription. All wholesalers are stocked with these preparations for your druggist's convenience Literature and samples on request.

STA-O-GEN FOR OFFICE TREATMENT AND THE ANSWER TO

What can I trust
my patient with,
to use at home?

PROPERTIES At body temperature, in the presence of moisture, every particle of this bland ozomide of olive oil releases a relatively huge amount of germicidal, fungicidal and deodorizing nascent oxygen, steadily and unremittingly for many hours

Treatment of Leu-
korrhea with Ozon-
ide of Olive Oil.
David Nye Barron
N Y State Journal
of Medicine, Vol.
41 Jan 15, 1941



Woman's Auxiliary

To the Medical Society of the State of New York

County News

Columbia. The June meeting of the auxiliary was held at the home of Dr and Mrs John L Edwards. Fifteen members were present for the business meeting. The president, Mrs Robert L Bowerhan, of Copake, presided. A letter of appreciation was read from the board of directors of the Physicians Home for the \$10 recently contributed. Mrs Bowerhan and Mrs W D Collins reported on the Convention. The final sum of \$317 was realized from the dance given by the auxiliary for the benefit of the Hudson branch of Bundles for Britain.

At the close of the business meeting the auxiliary was hostess at a delightful tea given in honor of the graduating class of the School of Nursing of the Hudson City Hospital. The house was beautifully decorated with roses from the Edwards garden. At the tea table were Mrs Robert L Bowerhan, Mrs Lous Van Hoesen, Mrs Clark G Rossman, Mrs O H Bradley, Mrs Hugh G Henry, Mrs W D Collins, Mrs Everett A Jacobs, and Mrs Heinz Salm. Guests included the members of the graduating class, the faculty of the hospital, the auxiliary, and Mrs Masheke, Mrs J Rider Cady, Dr Elah Bliss, and Mrs Helen Durham.

Erie. On June 24 the season closed with the annual Guest Day. Mr James A Whitmore, manager of the Buffalo City Planning Association, was the guest speaker and talked on "Buffalo Looks Ahead." Preceding the talk a round-table luncheon was served. Mrs Carlton E Wertz presided at the business session. Mrs William Rennie was general chairman of the enjoyable event which was purely social. There were prizes for golf, which was played in the morning followed by a buffet luncheon and an afternoon of cards in the Meadowbrook Golf and Country Club. Mrs Alan E Richter was co-chairman, transportation was arranged by Mrs Andrew J Charters and Mrs Walter L Machemer, golf activities were directed by Mrs Frank G Wolz and Mrs Elmer T McGroder, flowers, Mrs Wertz and Mrs Harold B Johnson, prizes, Mrs Wendell P Reed and Mrs Jerome J Glauber, tickets, Mrs Donald R McKay and Mrs Joseph C Scano, reception, Mrs Edward Villeneuve and Mrs Joseph P O'Brien, reservations, Mrs Edward S Buffum and Mrs Clarence J Durshordwe.

Oswego. The annual luncheon was held at the Morrill tea room in Fulton. Mrs John L Mason, of Pulaski, presided at the business session at which the following officers were elected: Mrs Harold F McGovern, of Fulton, president, Mrs A J Cinsotta, first vice-president, Mrs Joseph B Ringland, second vice-president, Mrs F Edward Fox, treasurer, Mrs William Fivaz, assistant treasurer, Mrs D D O'Brien, recording secretary, Mrs Umberto Cimulodoro, corresponding secretary, Mrs William Fivaz, assistant corresponding secretary, Mrs John L Mason, Mrs A B Thompson, directors. Reports were given by committee chairmen and a decision was made to give two Girl Scout scholarships to

the Scout camp, selection of the girls to be made by the executive adviser of Girl Scouts. Nineteen members were present. About 300 children of preschool age received immunization against diphtheria in the three-day toxoid clinic held in Oswego schools. This clinic is sponsored each Spring by the Woman's Auxiliary. Mrs G A Marsden, Mrs J J Riley, Mrs H J La Tulip, and Mrs J J Brennan assisted. Dr G A Marsden, health officer, expressed his thanks to the Department of Education, Dr Adele Brown, of the school system and to the auxiliary who assisted.

Saratoga. Sponsored by the auxiliary, a *Mental Health Institute* was held on May 22 at the Saratoga Springs High School Auditorium. Mrs T E Bullard, president of the auxiliary, welcomed the afternoon audience and emphasized the importance of the institute. Mrs Bullard then introduced Dr Thomas J Goodfellow, chairman of the advisory board, who presided. Dr Frances E Vosburgh, of the State Department, spoke on "Adjustment Problems of the Adolescent Girl." Dr D Even Cameron, professor of neuropsychiatry at the Albany Medical College and director of the Moshier Division of the Albany Hospital, was also a speaker. The evening session was attended by over 300 people. Dr M D Duby, vice-president of Saratoga County Medical Society, was the chairman. Dr Kathryn L Schultz, clinical assistant at the Albany Hospital and psychiatrist for the New York State Training School for Girls at Hudson, was one of the evening speakers. Dr Frederick L Patry, of the State Department, gave an address on "Understanding and Management of the Emotions."

Dr Cameron advocated the formation of local councils of social agencies as forming the core of a group interested in the human side of the community. He said "The experiences of every country with which we have been in contact have shown that where the individual can feel he has contributed actively and meaningfully, his insecurity and apathy subside. Our progress to new and more satisfying living depends in great measure upon the success which attends our efforts to deal, in collaboration with other social sciences, with this great problem of community social health during the present crisis and the years beyond."

Dr Vosburgh made the statement that "An adolescent girl may be the joy and pride of her parents and teachers or their despair, for her behavior is unpredictable. She may be criticized for irresponsibility, carelessness, for being boy-crazy, or for being too shy and not mingling with others. It is very necessary to maintain a good hygienic routine during the adolescent years with particular reference to rest, food, and exercise."

It was brought out that during the last few years there has been an increasing number of cases of tuberculosis in girls between 15 and 20.

[Continued on page 1104]



Q I've noticed that some cans are golden-colored on the inside. Why is that?

A. You've probably noticed that kind of lining on cans for colored products. It's put there to protect their quality principally from a color standpoint. You'll also notice it on certain vegetables and meats. For other products, a plain tin lining is entirely suitable. The lining of the can is adjusted to the needs of the individual food. These can linings are special inert enamels baked onto the tin plate at high temperatures. ⁽¹⁾

⁽¹⁾ 1941 Canner 92 No. 12, Pt. 2, pages 78-81 1936 Canner 82, No. 11, Pt. 2, pages 104-105



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To the Medi

Columbia. The June meeting was held at the home of Dr. and Mrs. Edwards. Fifteen members were present at the business meeting. The president, L. Bowerhan, of Copake, presented appreciation was read from the members of the Physicians Home for the aged. Mrs. Bowerhan contributed. Mrs. Collins reported on the C. final sum of \$317 was realized given by the auxiliary for the Hudson branch of Bundles for the

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Erie. On June 24 the annual Guest Day. Mr. manager of the Buffalo Convention, was the guest speaker. "Buffalo Looks Ahead" round-table luncheon was held. E. Wertz presided at the luncheon. William Rennie was guest of honor. An enjoyable event which was held. There were prizes for golf, which were prizes for golf, which morning followed by a busy afternoon of cards in the Buffalo and Country Club. Mrs. Wertz was co-chairman, transportation Mrs. Andrew J. Charters, golf activities Mrs. Frank G. Wolz and Mrs. Wertz, flowers, Mrs. Wertz and Mrs. Mason, prizes, Mrs. Wendell, Jerome J. Glauber, ticket Mrs. McKay and Mrs. Joseph C. Mrs. Edward Vilhaume and Mrs. O'Brien, reservations, Mrs. and Mrs. Clarence J. Durshor

Oswego. The annual luncheon was held in the Morrill tea room in Fulton. Mrs. Mason, of Pulaski, presided at the luncheon. Mrs. Harold F. McGovern was guest of honor. Mrs. A. J. Cinsotta, first vice president, Joseph B. Ringland, secretary, F. Edward Fox, treasurer, assistant treasurer, Mrs. Wertz, corresponding secretary, Mrs. A. B. Thompson, given by committee. A resolution was made to give

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HOW MANY PHYSICIANS?

According to Dun & Bradstreet statistics, at the beginning of 1941 there were 144,048 physicians of all ages and kinds in the United States

Some 37,000 were located in towns under 5,000 population and almost 107,000 in cities with a greater population

Almost 22,000 were over 70 years of age, more than 47,000 were over sixty, and some 60,000 were over fifty-five Fifty-seven per cent were under 55 years of age

General practitioners comprised only 91,271 of the total number Of these, 14,000 plus were over seventy, almost 30,000 over sixty and over 39,000 were older than fifty-five years of age

If all these figures are reasonably correct then we may assume that there are 52,777 specialists in the country, about forty per cent of which are over 55 years of age

as compared with 44 per cent in the general practice group

Specialists listed are Dermatologists, Eye, Ear, Nose, and Throat, Gynecologists, Industrial Surgeons, Obstetricians, Osteopathic, Pediatricians, Public Health, Roentgenologists, Surgeons, Tuberculosis, and Urologists

In their order of rank as to numbers, Surgeons come first with 15,715 and Osteopaths second with 9,485 Next in rotation are Eye, Ear, Nose and Throat specialists with 6,906, Gynecologists with 4,834, Pediatricians with 4,297, Obstetricians with 2,423, Urologists with 4,211, Roentgenologists with 2,088, Industrial Surgeons with 1,424, Dermatologists with 1,226, Tuberculosis specialists with 1,187, and Public Health doctors with 1,152

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Literature on Request

ESTABLISHED 1889
THEODORE W. NEUMANN, M.D., Phys in Chg
CENTRAL VALLEY, Orange County, N. Y.

(Continued from page 1402)

The authorities do not know why, but suspect that the combination of three factors contribute toward making girls more susceptible than boys to infection. These are too little rest, unwise dieting, and chilling of the body by inadequate clothing in winter.

Dr Patry advised us to cultivate humor as a balancing factor. "Control of emotions is more fundamental than knowledge. It makes for essence of living." Dr Schultz, in discussing the problems of women, said that "Women in business have much the same problems as men, with other problems added. Many women have a heavy family responsibility, manage their own households and have to go to business, find themselves at a disadvantage because of the social attitude toward the women who have to work, and have little time for leisure." She said

"ORCHIDS TO DRAFT BOARD PHYSICIANS"

That is the rather attractive title of a brief article by Dr Reginald A. Higgins, president of the Medical Society of the County of Westchester, in the society's *Bulletin*, noting that Colonel Leonard Rowntree, chief of the Medical Division of the Selective Service System, paid a glowing tribute to the medical profession of the United States for its assistance in the administration of the Draft Law. Colonel Rowntree stated that more than 98 per cent of the medical work of the Selective Service System is being done on a voluntary basis by doctors who receive no financial compensation whatsoever for the many hours of work they are called upon to perform. He stated that "there is not the slightest suggestion of criticism by the Selective Service authorities of the work done by the medical examiners." He characterized the service as "nothing short of splendid."

Dr Higgins adds that "it is typical of the medical profession that this voluntary service is being rendered without the beating of drums or the fanfare of trumpets and represents just another contribution on the part of the medical profession to the welfare of the community."

The *Bulletin* also notes that high praise for the work of the New York State physicians who are serving as local board medical examiners was given by Brigadier General Ames T. Brown, New York State Director of Selective Service.

"The local board physicians are not paid for their work," said General Brown. "They are doing a tremendous job and doing it exceedingly well, as their patriotic contribution to the national defense. Busy as most of them are with their private practice, they are giving freely of their time for this additional task and even allowing it to interfere seriously with their private activities and income."

"The high early percentages of induction station rejections tended to give the public an erroneous impression that the local board physicians were sending the wrong men to the Army. This was an injustice to the physicians, for not only has the percentage of rejections diminished rapidly but these percentages never did reflect the situation accurately."

"From the start of the first call up to March 1, only 2,762, or 17 per cent, of the 13,035 regis-

trants delivered by these local boards were rejected at the induction stations. Yet this period includes the most difficult months of the physicians' task.

"Differences in interpretation of requirements had to be discovered and ironed out. Each board started out with one examining physician, but after the first call more were added wherever it was found that a job was too much for a single examiner.

"The doctors, overworked and rushed, had to select their men and send them before an induction station board of specialists, supplied with equipment and facilities which the local board physician did not have at his disposal, except in a very few cases where hospital facilities were available.

"On the one hand was the necessity for striving to find as many Class 1-A men as possible, to insure meeting quotas, and on the other hand the Army was exercising the utmost selectivity because it was desired that the first inductees be the physical cream of the crop, many of them being intended for assignment to military detachments already well advanced in their training.

"In spite of all this, the doctors made an excellent record of picking the right men to prove acceptable to the Army, especially when we realize that the difference between a completely acceptable trainee and one who is not, often is a very thin line, a matter of opinion only.

"Even the 17 per cent of rejections for the first three months does not tell the true story, inasmuch as many of the rejections were of a temporary character. Some of the men listed as rejected simply were given a 1-B classification, being sent back to the boards with instructions to deliver them again when the Army calls for men for limited or special service. Some were rejected only to return later, after having certain dental or other treatment, and were then accepted. The rejections also included those who reported suffering with a fever or injury or other temporary disability but who were delivered again in a later call and accepted. Some rejections, too, were for language difficulties or on moral or legal grounds and, therefore, were no fault of the doctors who approved their physical condition."



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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue Brooklyn N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

REVIEWED

Malignant Disease and Its Treatment by Radium By Stanford Cade, F R C S. Quarto of 1,280 pages, illustrated. Baltimore, Williams & Wilkins Company, 1940. Cloth, \$10.

This is an ambitious volume compiled as a textbook for the treatment of malignant disease by radium for use of the specialist in cancer therapy. The book is divided into three parts. The first part deals with the physics of radiation, the second part with the biologic effects of radiation, and the third part with the natural history and treatment of malignant disease by radium.

The physics of radiation is treated in a lucid way. This work contains several contributions to the physics of radiology, notably isodose curves for various strengths and length radium needles. It also presents a detailed discussion of radium dosimetry and conversion factors for radium dosage into equivalent r units. The reviewer agrees wholly with Dr Cade's and his co-workers' insistence that the ideal description of radium dosage would be in terms of equivalent r units delivered at the tumor site over a stated period of time. Unwittingly perhaps, Dr Cade recognizes the difficulty in always being accurate in calculation of radium dose—to wit "distribution of radium on a plaque—decided by the clinician intuitively." This, of course, is contrary to the accurate work of Patterson and Parker and others. Few workers in the field have had the opportunity that Dr Cade has had in the use of the 4-Gm radium pack. Therefore, his discussions of the physical factors, dosage system, and in the third section his clinical experience in the use of the radium pack makes doubly interesting reading. The second section dealing with radiation biology is well written and readily readable but contains nothing essentially new.

The third section shows the amazing quantity of material that Dr Cade's many years of experience has covered. The clinical descriptions of disease are well written and not too lengthy. Now and again the reader will run into valuable and homey dicta borne out of extensive experience.

In discussing radium therapy of the various malignancies, instructions for radium technic and radium dosage are explicit, detailed, and radical. His doses are always large, frequently much larger than those used or reported by other workers. The results of treatment are far better than those in the experience of the reviewer. For instance, in his chapter on the treatment of metastatic carcinoma in the glands of the neck the author states "The disappearance of masses of glands in the neck secondary to squamous cell carcinoma of the mouth can be obtained in 60 per cent of the cases. Recurrences take place in one-half of the cases treated." The usual experience is far below this.

The faults of the book are twofold. First, the statistics presented are sparse, incomplete, and not broken down so as to allow for comparisons

with the experiences of the reader. Second, the problem of radiation therapy is considered essentially from the point of view of the radium therapist and the interrelated problems of x-ray therapy are touched only superficially. In practical experience it is impossible to separate these two fields to the degree that the author does.

All in all the book is good, diligent, and wide in its scope.

ASA B. FRIEDMAN

Electrocardiography in Practice By Ashton Graybiel, M.D., and Paul D. White, M.D. Oblong Octavo of 319 pages, illustrated. Philadelphia, W B Saunders Co., 1941. Cloth, \$6.00.

Graybiel and White have written an excellent practical introduction to electrocardiography which can be highly recommended to those beginning its study. The first section of the book consists of sample records, case histories, and interpretations which serve as the text of the volume. The second half of the book is devoted to numerous practice tracings, without labels, the case histories and interpretations being on other pages.

The authors have emphasized that clinical electrocardiography is as yet largely empirical and have made their interpretations with commendable conservatism, avoiding the dogmatic and controversial. They have achieved their aim of writing a "practical" text. Theoretic considerations are carefully avoided, too much so in this reviewer's opinion.

The volume is clearly printed and the quality of paper and binding is praiseworthy, but there is much waste space. It is to be hoped that with future editions the publishers may find some way of avoiding the awkward size of the present volume. If details of taking electrocardiograms and interpretative technic were included, this would indeed be a complete text for the beginner. However, at the present writing it is the best book of its kind available. There should be a special word of praise for the admirable analytical index in the appendix.

MILTON PLOTZ

The Era Key to the U S P XI & N F VI Fifth edition revised by Lyman D. Fonda. 16 mo of 320 pages. Newark, The Haynes & George Co., 1939. Cloth, \$1.00.

The fifth edition of this reference book, first published in 1893, is of principal interest to the pharmaceutical student. It contains in abbreviated form an alphabetical list of drugs, chemicals, and preparations of the U S P and N F, giving their Latin and English titles, dosage, active constituents, therapeutic action, and the official preparations of the drugs. Some new sections have been added to increase the scope of the book.

FREDERICK SCHROEDER

(Continued on page 1408)

NEW YORK STATE JOURNAL OF MEDICINE

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VOLUME 41

JULY 15, 1941

NUMBER 14

Editorial

The Future of Medicine

It is important that physicians who are interested in the development of medicine in the United States assess and weigh carefully the relative importance of the pressures that at present are molding both practitioners and institutions of the medicine of the future. Two pressures are now operating simultaneously, each originating from a common source but with different intensities and each creating a different kind of mold because of the peculiar problems involved.

These pressures stem from the foreign and the domestic policies of the government. During the last eight years radical changes have been made in the mold of American medicine by the operation of the domestic policy of the government. Enormous pressures have been exerted upon medicine by the mass of new legislation. Responding to these legalistic pressures, medicine has materially altered its shape. But it has done so at a relatively slow pace. Legislative enactments, however, have been rapid. The impact of these rapidly accumulating legislative pressures on the relatively slow-moving body of medicine has produced within it many torques and stresses.

These stresses and torques have had little time to resolve themselves. The domestic policy of the government has been one of rapid progression toward a socialistic state, with frequent reallocations of powers and functions between the administrative, the legislative, and the judicial branches. All of these branches

of government exercise influence and exert pressure upon the body of medicine and mold its habits and practice. The ultimate fate of medicine resides in the body of law that governs it and defines its responsibility and accountability. At present it is too complex.

It may be seen then that much pressure has come to bear upon medicine due to changing concepts of the relationship between government and governed—that thing or state of mind that is called the domestic policy of government. The structural and postural changes in medicine by which it has sought to adapt itself to the new conditions have been only partly accomplished. For example, medicine has not wholly adjusted its thinking and practice to the acceptance of the support of the people by their government and to the practices that of necessity flow from this concept. Other major problems arising from altered economic concepts and practices are still but partly solved and seemingly will be still further delayed in their solution, if not thrown out altogether, by the recent abrupt change that has precipitated the Nation into a war economy.

It is the foreign policy of the government, precipitating the abrupt change to a war economy, which is now shaping, and will continue to alter further, the future of medicine. The pressures of military necessity are now replacing, or more properly adding to, the already existing stresses occasioned by the al-

[Continued from page 1406]

The Chronicle of Crichton Royal (1833-1936). Being the Story of a Famous Mental Hospital during its First Century, and Illustrating the Evolution of the Hospital Care and Treatment of Mental Invalids in Scotland. By Charles Cromhall Easterbrook, M D. Quarto of 663 pages, illustrated. Edinburgh 12, Scotland, Murrayfield Hotel, The Author, 1940. Cloth, 25/.

This 660-page book describes the establishment, development, and growth of a famous mental hospital in Scotland during the first century of its existence. There is an account of the development of the mental attitude of people toward the treatment of the mentally sick. It discusses the various groups of people interested in the establishment and maintenance of this institution and the different laws established for the management of the mentally sick and narrates the progress made in these directions. There are many illustrations and photographs which are graphic presentations of the development of this large institution.

This volume may well be designated as an authoritative and illuminating account of the progress of psychiatry in Scotland and in England during the last one hundred years.

This book should have a wide appeal to those who are interested in psychiatry and in the history of medicine in general.

IRVING J. SANDS

Diseases of the Digestive System. Edited by Sidney A. Portis, M D. Octavo of 952 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$10.

This new book edited by Dr. Portis is a concise résumé of facts more recently brought out in the field of gastroenterology. It is the result of collaboration by fifty authors, each writing expertly on his particular subject. The rapid growth of gastroenterology has made the old form of textbook (to use the editor's own adjective) archaic. So vast has been the accumulation of facts, that it would be difficult for one person to present the subject in its entirety.

The relationship of the digestive tract to the anemias is well presented in a short chapter.

A section dealing with the dietetic concepts of gastrointestinal diseases is particularly lucid and scientific.

A matter that is much misunderstood by the average physician is the relation of the teeth and dental disease to the digestive tract. This subject is authoritatively treated in a compact chapter.

Much research in late years in the field of liver physiology has altered many of our ideas of liver pathology and its treatment. The exposition of liver function, the more recent tests, the modern classification of liver pathology, and the latest conception of diet are all included.

Other sections worthy of note are those on allergy, regional ileitis, dysentery, diverticulosis, and gastrointestinal tuberculosis. A selected bibliography is supplied for those who wish to extend their reading on any subject.

This volume assembles a wealth of detail, most of it new and presented by writers each proficient in his own field. It is decidedly a product of the

west and middle west with a few contributors from Boston and New York.

HENRY F. KRAMER

Laboratory Text in Pharmacology. By Robert P. Walton. Quarto of 85 pages. Philadelphia, J. B. Lippincott Co., 1940. Paper.

This treatise is a collection of experimental exercises intended to serve in a supplementary manner to the more complete laboratory manual and standard texts. The exercises are adaptations of well-known experiments, and references are made to identify their origin. It is a useful text for students who wish to review a brief summary of the usual pharmacologic experiments without consulting the more voluminous books on the subject.

FREDERICK SCHROEDER

Diagnosis and Treatment of Menstrual Disorders and Sterility. By Charles Mazer, M D., and S. Leon Israel, M D. Octavo of 485 pages, illustrated. New York, Paul B. Hoeber, Inc., 1941. Cloth, \$6.50.

This book is written by teachers of wide experience who have made many contributions to our knowledge in this field of medicine. It is primarily written with a view of the needs of the general practitioner, as emphasis is placed on treatment easily handled in the office rather than at the hospital. Ordinarily, menstrual disorders are explained and interpreted under the heading of the various and diverse pathologic conditions responsible for their appearance. As the authors say, "Clinically, it is more expedient to discuss these symptoms as if they were distinct pathologic entities, not only because they are, in most instances, the only manifestations of the morbidity in question, but also because each of them is so often the sole sign of multiple, co-existing and totally unrelated pathologic conditions." Very often the cause of amenorrhea or uterine hemorrhage is not discernible by all the means at our disposal, and the patient must of necessity be treated symptomatically.

The therapy is conservative, measures employed with success as measured by past experience. At the end of each chapter is a bibliography complete enough for practical purposes. It is a useful book for the average physician.

F. B. DOYLE

Surgical Anatomy of the Head and Neck. By John F. Barnhill, M D., and William J. Melinger, M D. Second edition. Quarto of 773 pages, illustrated. Baltimore, Williams & Wilkins Company, 1940. Cloth, \$15.

This book may well be called the otolaryngologist's primer, it is being used extensively by candidates for certification by the American Board of Otolaryngology. It covers the fundamentals of surgical anatomy quite completely. The illustrations are numerous, most are extremely valuable.

The second edition of the finest book of its kind deserves the enthusiastic reception it is enjoying. It should have a place in the library of all physicians who are in any way associated with otolaryngology.

M. C. MYERSON

reduced to one-quarter of that of the previous year, a saving of £12,000 "

We commend these items to the attention of all committees on publications of our several state or county medical societies

British Medical Journal

"Production and distribution of the *Journal*, though beset by many difficulties, have continued during the second year of war. The air raids upon London and the shortage of paper had to be contended with. Conditions of life and work during the heavy bombardments imposed a severe strain upon all engaged in producing the *Journal*. To meet the reduction in paper supplies, and the high cost of paper and postage, economy of space is effected wherever practicable, and the overall size of the *Journal* has been kept down. The inflow of original articles shows little decline in volume and far exceeds the capacity to print them. The number of letters for publication continues very large indeed, and correspondence has occupied much space so that members may have full opportunity of recording experience and putting forward their views on the great variety of topics that keenly interest the profession in wartime. The principle followed in choosing material for publication is to give preference to that which has topical interest and value, and to afford medical men and women information and guidance which will increase their ability to serve the country. Thus the pages of the *Journal*, week by week, play an indispensable part in promoting the profession's war effort and in giving it a forum to discuss the problems of to-day and to-morrow. The *Supplement*, though much cut down in size, gives prominence to War Notices issued by the Central Medical War Committee and publishes miscellaneous information which must be brought to the attention of practitioners in wartime when other means of communication and discussion are limited or cut off. Advertisements have diminished in bulk, but that has been more than offset by the higher charges for advertising space.

"Early last autumn, when things were at their worst in London, the *Journal* ended its 100th year of continuous publication, and the event was signalized by a Centennial Number dated October 5, 1940. This, though of modest size and scope, contained some historical matter and many gratifying messages of congratulations and good will from leaders of the profession at home and over-seas "

To the courageous and hardy editors of the *British Medical Journal* we extend our felicitations and admiration (as of early last autumn) upon its first, and we hope its most difficult, one hundred years of continuous publication. It has set a standard that compels our admiration and greatest respect.

In view of the President's recent call for medical volunteers for overseas service, the following letter on medical manpower in Britain* should be of interest to our readers.

"Sir—We have heard a great deal lately about the acute shortage of medical personnel. Will anyone courageously publish the facts? For when the facts and the truth are published there is evidence of maldistribution, muddle, and rapacity.

"The G M C informed me a year ago that the number on the Medical Register was approximately 64,500, this included aged, infirm, retired, and women practitioners, recently qualified, will make this number up to (allowing for death) about 65,500. Of these, I understand, approximately 36,000 are normally engaged in practice in England and Wales. The Services (by which we really mean the Army, as the Navy and Air Force are small numerically in comparison) would like to have, apparently, about one medical officer to every 250 fit and healthy young men, hence for 3,000,000 about 8,000 to 12,000 medical officers, the remaining 42 millions of population being left with the balance, about 24,000 to 28,000 medical practitioners, for all the other services—civil, general practice, consultant, E M S, and so on!

"Approximately half the Army medical officers are engaged in administrative, clerical, and office duties, the other half who are doing clinical work (so-called), for the most part in the United Kingdom, only treat minor maladies, all serious cases being transported to the local hospitals in their districts. Hence this horde of Army medical officers are not even dealing with, nor have they in many instances the equipment with which to treat, anything like all their cases. At home the Army is rapacious, desiring the lion's share of the nation's limited medical personnel, and having taken these thousands of medical men,

* *Brit. M. J.* 690 (May 3) 1941

terations in the domestic policy of the government

Thus, medicine is now under the necessity of meeting the problems of the mobilization while still having on its hands in an unsolved state the many previous problems flowing from abrupt alterations of the domestic policy of the Administration. Speaking before the Medical Society of the County of Monroe, May 29, 1941, Colonel Samuel J. Kopetzky, M C * said "We are handicapped by inherent barriers that have been erected by ourselves and which are mental attitudes produced by a decade and a half of national life pledged to an idealistic complacency." These mental attitudes can no longer endure, they have been already subjected to pressures and stresses, they have been caused to bulge and alter their shape in the last eight years. Now, under the impact of a foreign policy that

* See page 1487 of this issue

has imposed a war economy on the Nation, it is likely that mental attitudes as well as medical education and practice will alter rapidly and to a certain extent unpredictably.

The trend over the next few years, we think, will be toward a simplification of procedures and toward economy of effort. The elaboration and refinement that have characterized the period of idealistic complacency will not survive the mounting pressure for direct and economical action. The greater influence—namely, the foreign policy of the Nation—will submerge and engulf the relatively smaller domestic issues, to meet which much of the elaboration of procedure and refinement of thought on the part of medicine and government has arisen. We are of the opinion that the inevitable simplification, forced as a result of this newer pressure, will be beneficial to the future of medicine.

Medicine in Britain

The May 17, 1941, issue of the *British Medical Journal* carries, on page 755, the laconic

"Notice to Readers"

"To-day's issue of the *British Medical Journal* has been prepared and passed for press under conditions of very great difficulty brought about by exigencies of war. Readers and contributors are asked to overlook imperfections in the *Journal* as now printed in a different type-face, and to understand that much current material is perforce missing.

"It may now be stated that British Medical Association House suffered severe damage in one of the recent air raids on London, but work continues in all the departments."

Page 762 of the same issue is partly devoted to the question of blast protection for hospital windows.

"Air raids are increasing in their intensity, the weight and destructive capacity of bombs are greater, and hospitals are more likely to be put out of action even from a 'near-miss'. Experience has shown the need for bricking up the windows of resuscitation wards. It

is not only that destruction of windows and black-out material raises difficult problems of lighting, but the temperature of the ward may fall so seriously as to endanger the patients from that cause alone. Arguments for occluding the window-openings apply to theatres too, and, with somewhat less force, to general wards, where bricked-up windows mean difficulties of ventilation and serious interference with the patients' comfort."

From the Annual Report of Council, 1940-1941, we take these items

"Journal" Account

"In spite of severe restriction of the size of the *Journal* by the Ministry of Supply's control of paper, which reduced the space available for advertisements, the revenue from advertisements has been more than maintained owing to an increase of 50% in the rates for space made in May, 1940. Though many production costs have increased, particularly the cost of paper, these have been more than offset by the smaller *Journal*. More copies were printed, but the net cost of the *Journal* to the Association has been

Symposium on Food-Borne Diseases of the Gastro-intestinal Tract

VETERINARY FOOD INSPECTION

ORVILLE E. MCKIM, Lt. Col., V C, U S Army, Pine Camp, Great Bend, New York

MANY invaded countries have come to the painful realization that their worst enemies were within their own boundaries. It is safe to assert that many of the greatest enemies to human health also operate from the interior. Therefore, too much emphasis cannot be placed upon the importance of a properly balanced diet of foods that have been protected by competent inspection at their source and by supervision in their preparation. In much the same manner that modern fifth columnists use to gain entrance to vulnerable countries, exceedingly dangerous and even deadly influences enter the body by the way of the alimentary tract with food that is not even suspected of harboring and carrying with them agents that may and do cause acute illness, and, in many instances, death.

Little, if any, thought is ever given by the average person to the hazards of disease and death that lurk in foods, particularly those of animal origin. The importance and responsibility of the inspection of food is seldom referred to, and the service rendered through veterinary inspection is rarely given the recognition to which it is entitled. It is safe to assume that there are those who have never realized the protection they receive through the manifold veterinary inspection services that are rendered in national, state, and municipal public health departments. The dangers of disease being disseminated by unfit meat and contaminated milk are materially lessened and, to a certain extent, completely eliminated through competent and thorough inspection at their sources.

The Bureau of Animal Industry of the U S Department of Agriculture is a veterinary installation to which the veterinary profession and the entire nation can point with fully justified pride. It was originated and organized by a veterinary scientist, Dr. D. E. Salmon, who upon his death was succeeded by Dr. A. D. Melvin, under whose administra-

tion continued progress was made. Today under the direction of the incomparable executive and veterinary scientist, Dr. John R. Mohler, it stands as a model for the entire world and, using such a model as a pattern, many nations have initiated similar installations.

Many and varied are the diseases and reasons that render meat unfit for human consumption. Rejections or condemnations of meat are made for the following diseases and conditions¹: tuberculosis, anthrax, foot and mouth disease, glanders, actinomycosis, rabies, tetanus, variola, septicemia, pleurisy, pneumonia, pyemia, black leg, osteomalacia, melanosis, botryomycosis, enteritis, peritonitis, malignant edema, metritis, leukemia, hemorrhagic septicemia, piroplasmosis, uremia, parturient paresis, pregnancy, calf dysentery, local inflammatory changes, tumors, febrile diseases, mammitis, swine erysipelas, swine plague, hog cholera, abscesses, lung worms, nephritis, endocarditis, myocarditis, pericarditis, hepatitis, liver fluke, measles, Babesia, rachitis, and anemia.

Many of the foregoing diseases and conditions are diagnosed by veterinary inspection on antemortem examination and condemned before they reach the killing floor. According to C. E. Edmonds, D. V. S.,² supervising inspector of the Dressed Poultry Inspection of Chicago, 43,550,124 pounds of dressed poultry were government inspected in the United States during the period of a year. Of these, 743,777 pounds were condemned as unfit for food. The causes for condemnation include avian tuberculosis, septicemia, emaciation, decomposition, peritonitis, tumors, leukemia, abscesses, and other conditions. Tuberculosis by far exceeded all other causes.

It is to be hoped that in the not-too-distant future the specifications of the U S Bureau of Animal Industry will stipulate that all chickens, turkeys, ducks, etc., must be eviscerated and veterinary inspected prior to freezing. Aside from the protection from diseases previously mentioned, much more palatable meat is provided. When chickens,

¹Read by invitation at the Annual Meeting of the Medical Society of the State of New York, Buffalo, April 30, 1941.

for the most part of £450 per annum in a rank and status equivalent to that of a sub-lieutenant R N, aged 20 years, they do not even do their own work!

"It is obvious where combing is required. In many areas general practitioners are being worked to death. What has happened to the thousands of consultants and general prac-

tioners from denuded areas, whose practices have virtually disappeared?

"I am, etc,
Charles A H Franklyn, M D, M R C S."
Oxford, April 14

We commend this letter to the thoughtful consideration of the newly formed Section on General Practice of the American Medical Association

How the German Army Is Fed

The comparatively young science of nutrition—to be differentiated from the age-old art of gastronomy—is rapidly coming out of the laboratory into the kitchen—home, field, rolling, and Army. Questions involving fatigue and recuperation are demanding answers as the training of the new Army progresses.

Fortunately, at a time when interest in problems of nutrition is steadily growing, we are able to present on page 1471 an interesting discussion of this subject by Dr Max Gerson under the

title, "Feeding the German Army." It will be well worthwhile for our readers to peruse this article thoroughly in view of the many nutritional problems that face us here in civilian and military life.

At some time we will be faced with the necessity of feeding a postwar Europe. Some of the newer discoveries and practices of the growing science of nutrition may help in resolving many of the economic, as well as the nutritional, complexities of this period to which thought must be given now.

Medical Director of Civilian Defense

With the announcement on July 3 of the appointment of Dr George Baehr as chief medical director in the United States Public Health Service in charge of civilian defense, the Medical Society of the State of New York is brought into ever closer contact with the defense of the Nation. The announcement of Dr Baehr's appointment was made jointly by the Office of Civilian Defense and the U S Public Health Service. Dr Baehr will act as chief medical officer in the Office of Civilian Defense under the Honorable F H LaGuardia, director, and will coordinate the activities of Civilian Defense and the Public Health Service. Plans and facilities for disaster relief in the cities will be developed based on experience in handling these matters gained by the British.

At the last meeting of the House of Delegates, the Reference Committee on the Report

of the Secretary¹ said, in part: "We feel that Organized Medicine in New York State under the inspired leadership so far exhibited will not be found wanting in maintaining a concerted effort in the medical care and protection of both our armed and civilian population in this time of national emergency." The Society has good reason to feel that it is indeed being accorded the opportunity of maintaining a concerted effort in the medical care and protection of both our armed and civilian population, since it is being represented in the first of these categories by Col S J Kopetzky, M C, and now in the second by Dr George Baehr, who has served the Society so well in the recent past as a member of the Council Committee on Public Health and Education.

¹ New York State J Med 41 1373 Section 67 (July 1) 1941

ERRATUM

George Pollack, of Brooklyn, was listed among the "Deaths of New York State Physicians" in the July 1 issue—a mistake that we sincerely regret. The name should have been Charles Pollack, also of Brooklyn, a graduate of P & S N Y, who died on March 21.

Symposium on Food-Borne Diseases of the Gastro-intestinal Tract

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It is to be hoped that in the not-too-distant future the specifications of the U. S. Bureau of Animal Industry will stipulate that all chickens, turkeys, ducks, etc., must be eviscerated and veterinary inspected prior to freezing. Aside from the protection from diseases previously mentioned, much more palatable meat is provided. When chickens,

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turkeys, ducks, and other fowl are frozen with the intestines left in the abdominal cavity, there is always a varied amount of grain feed in the intestinal tract. Upon defrosting, a great amount of gas is formed by the fermenting of intestinal contents. This gas permeates the carcass and leaves a none too pleasant flavor. The cost of eviscerated fowl is no greater than those frozen by the old method now rendered obsolete.

Many of the foregoing diseases are not directly transmissible to the human body in their true symptomatic picture. The clinical manifestations of the results of the majority of pathologic conditions in foods of animal origin are caused by toxins that have developed in a diseased carcass either before or subsequent to slaughter. A well-recognized example of this phenomenon is the chain of symptoms caused by the toxins of *Bacillus enteritidis* which occur within a few hours after food is eaten. In most cases it is not possible to demonstrate the causative organism because it has been killed in the cooking or canning process, yet it leaves its deadly toxins that produce gastrointestinal disturbances, varying in severity with their potency. A similar condition is encountered when victims have eaten pastries, such as custards, which have been impregnated with the toxins of paratyphoid bacillus of mouse origin.

State and municipal veterinary services protect the public from many dangers in addition to those eliminated by the Bureau of Animal Industry inspection.

Locally slaughtered animals and fowl present a problem of no small proportions because of the possibility of meat from unsound animals being sold for human consumption. Prominent among the diseases that form the chief dangers are tuberculosis, anthrax, tapeworms, actinomycosis, foot and mouth disease, and various intestinal disorders.

The greatest hazard of intestinal disorders originating in locally slaughtered animals and poultry is the meat of animals or fowl that, after death from disease or accident, have been dressed and sold for food by unscrupulous dealers. This is termed "cold slaughter," and it is easily and quickly detected by the experienced veterinarian and condemned. The toxins that develop in meat of such origin are deadly in their effects and are unusually resistant to any methods used in an effort to destroy them.

State and municipal veterinary service is also indispensable in the inspection of proc-

essed meat products offered for sale by stores and markets.

Aside from the diseases previously mentioned in connection with farm-slaughtered or locally killed meat of animal or fowl origin, a terrific hazard exists in the form of toxins that are produced in the meat by bacteria. These toxins cannot always be destroyed by heat, and a severe gastroenteritis can result from them. These cases present three phases that may or may not be sharply defined: (1) choleric cases with profuse diarrhea, (2) cases running a typhoid-like course, (3) cases beginning with choleric symptoms but soon presenting typhoid-like symptoms. Although the greatest hazard of this condition is encountered in "cold slaughtered" animals, as previously mentioned, there are also other potential sources.

Another and equally important source is the chopped meat prepared by meat dealers and sold at a bargain price. It is a Roman holiday when commercial chopped beef is mixed and ground, since everything from trimmings of fat and gristle to old wrinkled frankfurters is thrown into the hopper and their identity is lost in the resulting shuffle. Bear in mind that it is the toxins of bacteria existing in unfit meat that produce deadly results, and these toxins cannot be destroyed by heat in cooking. It is safe to assert that the Meat, Food, and Dairy Inspection service rendered by the Veterinary Corps of the U S Army is equal to any, and superior to most, army veterinary food inspection services. The veterinary officer is charged with the dual responsibility of the protection of the health of the command from the dangers that lurk in meat and dairy products, as well as the economic protection of the government through the prevention of inferior or unfit products being delivered by unscrupulous contractors or dealers.

The Government Specifications are well defined and, in order to see that these specifications are not evaded, the veterinary officer is given a specialized training to qualify him as an expert in this field. He must be able *at a glance* to differentiate between cow, bull, and steer beef. In addition, he must be able to determine the age at slaughter, type, grade, and condition of all steer beef. He must be able to differentiate lamb from mutton, chicken from fowl, and pork, ham, and bacon of pig from that of hog origin. He must be able to score butter and cheese, grade lard, and be an expert in grading and classifying eggs, detecting all types of unsoundness.

common in them. He must be familiar with all types of deterioration, spoilage and unsoundness, and other features that disqualify any and all food products that might be a menace to the health of the troops.

During the year 1938, under the competent direction of Colonel R. A. Kelsner, chief veterinarian, Surgeon General's Office, the Veterinary Corps inspected for the U. S. Army and CCC (prior to or at purchase) 372,449,561 pounds of meat, meat food, and dairy products, 359,312,444 pounds were passed and 23,137,117 pounds rejected. The estimated monetary equivalent was \$1,158,411.97.³ Monetary equivalent represents the estimated difference in value between what was offered for delivery and rejected and the products finally accepted. When this saving of well over a million dollars is compared with the amount paid to veterinary officers over the same period, it offers conclusive evidence of the economic value of this protection and also causes the Veterinary Corps to feel fully justified in its pride of achievement. In addition to the meat and food inspection, the Veterinary Corps also performs important service through the sanitary inspection of all dairies and plants of contractors that deliver milk and food to the Army. Although not often publicized or prominently referred to, this phase of veterinary activity is indispensable.

The veterinary officer must also have a well-grounded knowledge of processed foods, such as hams, bacon, bologna, liverwurst, frankfurters, pork sausage, and seasonal viands such as summer sausage, etc.

His services are invaluable in canning plants where he supervises the canning of meats and other products. His inspection begins at the choice of the meat and other ingredients and carries through each stage until the can is lacquered and ready for shipment. During the year 1939 under supervision of the Veterinary Corps at the Chicago Quartermaster Depot for the U. S. Army and CCC 8,959,596 pounds of canned meat were inspected, prepared, passed, and accepted, while 186,063 pounds of canned meat were rejected.⁴

In order to perform the various duties involved in meat and food inspection, the veterinary inspector must of necessity develop all five senses to the highest degree. Keen sight is necessary to determine the condition, type, and grade of meat, eggs, dairy products, and other foods, as well as to detect any form of unsoundness or spoilage such as mold, de-

cay, sprouting, etc. The sense of smell is necessary for the detection of putrefaction, fermentation, and other abnormal odors. The sense of feeling is necessary to detect firmness or flabbiness and to determine the presence or lack of the bloom on eggs, dryness or moisture, and many other conditions. The sense of hearing is indispensable in detecting gas, vacuum, too much water or a too great amount of solids in canned foods, and in testing melons for ripeness, etc. The sense of taste is obvious.

In addition to the foods of animal and dairy origin, veterinary inspection also includes seafoods (fresh and canned), fruits, and vegetables. It will not be possible to present in detail any of the various fields covered by veterinary inspection. However, a few items of practical interest and advice for the guidance of those physicians whose practice is confined largely or entirely to diseases of the alimentary tract can be given. It is safe to assume that some of the most serious conditions encountered in this group are of an acute nature as well as of obscure origin. Upon inquiry into the history of such cases it is possible to disregard a potential causative factor through the failure to take cognizance of the momentous role played by toxins from various sources. It is safe to assert that in most cases where sudden attacks of intestinal disturbances (exhibiting as their principal symptoms, acute pain, nausea, diarrhea, prostration, and possibly coma) involve numbers of individuals, the etiologic factor is usually found to be a toxin of food origin. An enumeration of possible sources is pertinent to this discussion.

Sources of local origin may include meat from "cold slaughtered" animals to which previous reference was made, chopped beef made from scraps infected with *B. enteritidis* or becoming contaminated subsequent to being ground, veal from immature calves (bob veal) the sale of which is now legal in New York State if offered and sold as "baby veal,"⁵ as well as meat from sickly or infected calves previously referred to in this discussion, improperly processed meats such as bologna, boiled ham, veal loaf, etc., especially if not protected from unfavorable temperatures, potato salads that may contain a deadly poisonous alkaloid, solanin, present in immature, sunburned, and sprouted potatoes, as well as toxins developing from proteus bacillus or other bacterial contamination, and seafoods in which postmortem changes have appeared.

It is worthy of note that the poisonous toxins developing in putrid fish are more intense in their action than the putrefactive toxins in the meat of warm-blooded animals. Shell fish, such as lobsters, crabs, and shrimp, are usually the greatest potential source of seafood poisoning symptoms. Because of the shell in which the edible parts are encased, there are no means of escape for the toxins forming during preparation, and those developing in lobsters that are dead prior to cooking are the most severe in their clinical manifestations. In all ready-to-serve boiled lobsters that are purchased, care should be taken to note whether or not the caudal fin (tail) is rolled in—it is always straight if the lobster was dead prior to cooking.

Butter, cheese, and ice cream are also potential harborers of deadly toxins of bacteria, the latter two particularly adaptable to their propagation.

The recognition and serious consideration of the role played by toxins in gastrointestinal disturbances should be of primary interest in efforts made toward an accurate determination of the cause. Through the use of the Schwartzman phenomenon⁶ there is available a method by which the presence, as well as the potency, of toxins can be definitely demonstrated. Investigations conducted by public health authorities in search of the specific etiologic factors producing food poisoning symptoms in numbers of victims would be greatly assisted by the employment of this scientific and reliable technic. The utilization of the Schwartzman phenomenon should be of untold value in their efforts to fix definitely the responsibility for outbreaks by a positive proof of the source of the toxin-producing agents.

In conclusion, it is relevant to the subject under discussion to call to the attention of health authorities the protection from possible occurrences of food poisoning which is available through the use of competent veterinary meat and food inspection by having it included in municipal projects for public health preservation. In addition to the hazards of toxins that may be present in unfit meat and fish foods, there is also another food source of vital interest and importance in which veterinary service plays a prominent part. This is in the milk supply control so essential to the health of all communities. So many dangers are to be found in this universally used food, and products made from it, that serious consideration should be given to the supervision of the production, protection, and

distribution of this potential conveyer of disease. Time will not be taken to enumerate the milk-borne diseases since their presentation and discussion are of more interest to general medical practitioners. It is pertinent to this discussion, however, to draw to the attention of gastroenterologists that "cholera morbus" in children can become an unknown disease under proper veterinary control of milk sources and distribution. It is safe to assert also that many outbreaks of acute food-poisoning attacks could be reduced to a minimum by proper municipal veterinary inspection of all food offered for sale at fish and meat markets and other sources of possibly contaminated, improperly prepared, or otherwise unfit meat and dairy products. Veterinary sanitary inspections of stores, dairies, and other installations used for food distribution would serve to prevent contamination.

In countries vulnerable to attacks from the air, shelters are provided for the protection of the inhabitants from injury and death caused by unseen missiles. Is it not a logical procedure to protect the populace in peace, as well as in war, from the unseen dangers that exist in food, particularly those of animal origin? In this effort, veterinary inspection both of locally killed meats and of dairy products, as well as the other foods of animal origin, should play a prominent role. A more extensive utilization of veterinary service in municipal public health protection is advisable for humane purposes as well as for being an economically sound measure. The economic value of veterinary service has been conclusively demonstrated by the records compiled by U. S. Public Health Service, U. S. Bureau of Animal Industry, and U. S. Army, as well as many municipal departments of public health, and there can be no doubt of its necessity as a part of the humane endeavors made by public health organizations.

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4. Griffin, Will C. *Vet. Bull. Med. Dept. U. S. Army*, Oct. 1939.
5. Article 5, *New York State Agriculture & Markets Law* Section 91, p. 77.
6. Schwartzman, Gregory. *The Phenomenon of Local Tissue Reactivity*.

Discussion

Dr. E. T. Faulder, *Albany, New York* (read by Dr. J. W. Claris, *Buffalo, New York*)—I feel highly honored and especially privileged

to have been invited to discuss this excellent paper

In discussing food inspection, we immediately think of meats and meat food products so essential in our diets, and the inspection of meats and meat food products calls our immediate attention to the inspection of these products as carried on by the U S Department of Agriculture, Bureau of Animal Industry, under the Federal statute enacted in 1906

On July 1, 1940, Federal meat inspection was being carried on in 649 establishments and 251 cities and towns, cooperative service also being rendered to fifteen governmental agencies in the examination of meats and meat food products for condition in conformance to specifications

Under Federal meat inspection, both antemortem and postmortem inspections were made on 78,527,862 animals, representing cattle, calves, sheep, lambs, goats, swine, and horses, 27,208 being condemned upon antemortem inspection. Postmortem examination upon the animals subjected to antemortem inspection resulted in 223,548 being condemned. There were thirty-five different diseases involved in the condemnation of carcasses as unfit for human consumption

Throughout the many years that Federal meat inspection has been in operation—and the service is known and recognized as the most efficient of any in the world—much discussion has taken place by organized groups in the various states with the expectation that state-wide meat inspection could be inaugurated in the various states, patterned after the Federal Meat Inspection Service. The only state that has set up a state meat inspection is California, which has established an efficient meat inspection service. In New York State a committee of the New York State Veterinary Medical Association has been working on this problem for a number of years, and I am optimistic enough to believe that eventually New York will establish and maintain state-wide meat inspection to take care of the one-third of the meat-producing animals which do not undergo Federal meat inspection and only a part of which is inspected to any degree and in a limited number of places under local inspection—in many cases the inspection is not conducted by veterinarians. In the Federal Meat Inspection Service the veterinarians are appointed as a result of Civil Service examination, and this group of workers undergo constant training after entering the service

In addition to the antemortem and postmortem work done mostly by veterinarians, all meats

and meat food products under the Federal meat inspection system are done by a force of experienced and competent laymen also appointed as the result of Civil Service examination.

The number of animals subjected to antemortem and postmortem inspection under the Federal Meat Inspection Act, the number of animals condemned on account of antemortem inspection, and the number of carcasses condemned on postmortem examination because of various diseases have been pointed out. Let us now take note of the vast quantities of meat and meat food products subjected to inspection under the Federal Meat Inspection Act

During the fiscal year of 1940, 9,690,164,254 pounds were inspected. This covered products placed in cure, smoked sausage of various kinds, canned meats, bacon, lard, etc. The number of pounds of meat food products condemned because they had become sour, tainted, rancid, unclean, or otherwise unfit for human consumption was 5,035,163 pounds. These figures should emphasize the importance of the creation of a state meat inspection service patterned after the Federal Meat Inspection Service in all details. When this is done the meat-consuming public will be fully protected.

In all establishments where Federal or local inspection is maintained and where local inspection may be eventually established, sanitation should be maintained at all times. This means sanitary construction of the buildings and takes care of drainage, light, etc. The walls and floors should be constructed of proper materials, so that at the end of the day's operations all surfaces can be thoroughly cleansed by the use of a steam hose and the use of soda as a detergent. All equipment should be constructed preferably of metal, various parts should be removable and so made that all surfaces can be thoroughly cleansed as described, with no corners or crevices in which objectionable material can collect. Thus, such equipment can be kept thoroughly clean at all times, and meat and meat food products can be preserved in a sound and wholesome condition.

In connection with sanitation, controlled refrigeration is imperative for the preservation of the carcasses of meat-producing animals, meat food, and dairy products

In closing, it is desired to impress upon those interested in the protection of public health the economic value of veterinary food inspection, as well as its importance in sanitary inspections that prevent the contamination of foods intended for human consumption.

EPIDEMIOLOGY OF FOOD-BORNE DISEASES OF THE GASTROINTESTINAL TRACT

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I NEED hardly state that one could spend hours discussing the epidemiology of amebic dysentery, typhoid fever, or any of the other illnesses on the large list of diseases falling into this category. Therefore, I shall consider only those that are, or may become, prevalent in New York State and, furthermore, discuss only the more important or more interesting epidemiologic features of these diseases.

Since some of you may have recently thought as little about public health terms as I have about technical expressions of the gastroenterologist, perhaps I should remind you that "epidemiology" means the mass phenomenon of illnesses or, in other words, the characteristics of an illness as it occurs in the population as a whole. It involves the consideration, therefore, of such things as the age, sex, seasonal and geographic distribution, incidence at various periods of time, and similar mass features. In my discussion I shall not confine myself strictly to epidemiology, however, since there are some administrative aspects of the control of these diseases which I think will be of interest to you.

The illnesses to be discussed fall into five groups from an etiologic standpoint: those due to nematodes, protozoa, bacteria, filtrable viruses, and chemical poisons.

Trichinosis

Trichinosis is a disease caused by a nematode, *Trichinella spiralis*. The chief symptoms of trichinosis, of course, occur elsewhere than in the gastrointestinal tract but, since infestation occurs through this tract and gastrointestinal symptoms are also present to a greater or less extent, it seems proper to include trichinosis in this discussion.

In a recent article on the subject by Dr Wright of the National Institute of Health,¹ a map is reproduced showing the total number of cases reported in the various states throughout the country up to July 1, 1938. In this map New York State seems to stand in bold relief, since it is the only one in solid black denoting over 1,000 cases reported. This map does not give the proper impression

of the relative importance of trichinosis in different parts of the country, since it does not take into consideration the differing populations, the length of time the disease has been reportable, and the variation in completeness of reporting in the various states. Nevertheless, it clearly indicates that trichinosis is a problem worthy of consideration in the State of New York.

Human cases of trichinosis occur, as you know, through consumption of undercooked pork or pork products. The infestation of the hogs in the first place is apparently due chiefly to the practice of feeding them on raw garbage. The garbage contains raw pork scraps, which, in turn, contain cysts of the parasite, and thus there is completed the cannibalistic cycle that perpetuates the infestation in the hog. Although rats are highly infested, they apparently are seldom eaten by hogs and are not so important in the infestation of swine as formerly supposed. The feeding of offal to hogs is a ready means of producing infestation, but such feeding is believed rare in New York State and is specifically prohibited by law.

A minor outbreak of the disease has been experienced in 1939 and 1940. In the outbreak in the early part of 1940, 20 cases of trichinosis occurred among German-Jewish refugees living in New Rochelle and 15 cases occurred among residents of the Bronx, all of whom ate uncooked "teewurst" obtained from a company located in the Bronx. In the United States this product is ordinarily eaten only after cooking, but in Germany it is used raw as a spread, and these refugees used the product in the manner to which they had been accustomed in Germany.

The 1939 outbreak consisted of 11 cases among individuals attending a church supper in Potsdam Village, St Lawrence County. Pancakes and pork sausage were served at the supper, and investigation revealed that the original source of the pork was the local garbage collector's piggery. The hogs had been fed on raw garbage from the municipality.

A survey of garbage disposal methods,² made by the Division of Communicable Diseases of the New York State Department of Health in 1939, revealed that about one-

¹Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, April 30, 1941.

²From the Division of Communicable Diseases, New York State Department of Health.

third of the cities and incorporated villages in New York State dispose of their municipal garbage through feeding it raw to hogs. Elimination of this procedure should result in a material reduction in the trichinosis hazard in this state.

The 1940 Legislature appointed a Trichinosis Commission to study the problem. In its report³ the Commission recommends prohibiting the feeding of raw garbage to hogs and the establishment of intrastate regulations governing pork products ordinarily consumed without further cooking comparable with the Federal regulations governing interstate shipment of such pork products. Bills were introduced in the 1941 Legislature providing for regulations to govern these two phases of trichinosis control. The bill authorizing the Commissioner of the Department of Agriculture and Markets to establish regulations governing pork products was passed, but the bill prohibiting municipalities from entering into contracts for the disposal of their garbage through feeding it raw to hogs failed to pass.

Amebic Dysentery

In the protozoan group I shall consider only amebic dysentery, due, as you know, to the *Endamoeba histolytica*.

In 1933 a certain New York City night-club hostess, famous for her candid greeting of welcome to her guests, became ill on the West Coast with what was diagnosed by her physicians as acute appendicitis. Despite a phone call from the Chicago City Health Department, a laparotomy was performed, and the night-club hostess' career came to an abrupt and untimely end. The interest in the case displayed by the Chicago City Health Department was due to the fact that it had uncovered the existence of an extensive epidemic of amebic dysentery occurring among guests of two adjacent Chicago hotels. Autopsy revealed that, as the Chicago City Health Department had suspected, the hostess' illness had been amebic dysentery.⁴

Hers was only one of over 1,400 cases discovered by that Department as a result of a follow-up of each guest registered at the two hotels. The cases were scattered among residents of forty-three states, three Canadian Provinces, and the Territory of Hawaii. The unfortunate outcome in the night-club hostess' case was a fate shared by 40 per cent of the victims who were subjected to operation because the illness was mistaken for ap-

pendicitis. The case fatality rate among all cases was only 7 per cent.

Investigation⁵ disclosed that the illnesses were due to infected drinking water. Through faulty plumbing, fresh sewage from one hotel was introduced directly into the drinking water supply of both hotels. Interestingly enough, no case of typhoid fever or of any of the other usual enteric diseases was discovered. The reason for this apparent paradox is that the Chicago water, which is derived directly from Lake Michigan without preliminary filtration, is usually quite heavily chlorinated, and the chlorine residual was apparently sufficient to destroy the usual enteric pathogens but was not effective against the amebic dysentery cysts. That both typhoid fever and amebic dysentery would occur if the water were freshly polluted with sewage in the absence of chlorination was amply demonstrated in the same city shortly afterward (May, 1934) when both typhoid fever and amebic dysentery occurred among firemen and spectators drinking from a local, heavily contaminated source of water used in fighting an extensive fire in the Chicago stockyards.⁶

The importance of the hotel outbreak from an epidemiologic standpoint is that it clearly demonstrates amebic dysentery may be an important disease in the temperate zone as well as in the tropical zone and that it may be transmitted through contaminated water as well as by food infected by carriers. The food-handling carrier was formerly assumed to be the only factor of importance in the transmission of the disease.

Bacillary Dysentery

As to bacillary dysentery, in New York State this is chiefly a disease of institutional inmates, vacationists, and rural residents, and the same may be said of illnesses due to the paratyphoid-enteritidis (*Salmonella*) group of microorganisms. Outbreaks due to *Bacillus dysenteriae* Flexner, Sonne, and Schmitz repeatedly occur among the populations of institutions, particularly those for mental patients where it is difficult to maintain good standards of personal hygiene and mentally subnormal inmates are used to assist in the preparation and handling of food. A state institution for mental defectives has been utilized during the past two years for a detailed bacteriologic and epidemiologic study of endemic bacillary dysentery, conducted jointly by the DeLamar Institute of Public Health of Columbia University and the New York State Departments of Health and Men-

covered and, in most instances, recovery was complete within a few hours after onset. *Staphylococcus aureus* was isolated from specimens of the cream puffs and, although in this instance no suppurating lesions were found on the hands or bodies of any of the cooks, nose and throat cultures revealed that one of the pastry cooks was harboring numerous *Staph aureus* organisms in his throat secretions. The handling of the pastry was such that ample opportunity was provided for development of the toxin following filling of the pastry shells.

Ham apparently may also be readily infected by *Staph aureus* with formation of a toxin. This seems to be particularly true of the recently introduced hams that have undergone a tendering process.¹⁰ During the past five years, 1936 to 1940, seven outbreaks totaling 85 cases have come to the attention of the New York State Department of Health in which epidemiologic evidence incriminated ham as the source and in which the illnesses were suggestive of staphylococcus toxin poisoning. In several instances, portions of the ham considered responsible were available, and bacteriologic examination revealed the presence of *Staph aureus* in large numbers. To avoid such episodes, ham must be handled in a sanitary manner and kept refrigerated, except when actually being served, from the time the ham leaves the packing plant until all of it has been consumed.

Filtrable Viruses

I shall say little about food-borne gastrointestinal illnesses caused by filtrable viruses. Illnesses due to filtrable viruses usually are not gastrointestinal in nature. Although relatively minor, gastroenteric symptoms do occur in poliomyelitis, and a few outbreaks of poliomyelitis have occurred which seemed to be milk-borne.¹¹ There is ample evidence, however, that such transmission is rare indeed. With the recent demonstration of the frequency with which the poliomyelitis virus may be obtained from the stools of cases,¹² the possibility of occasional food-borne and water-borne transmission of the disease must be considered.

Epidemic diarrhea of the newborn is probably due to a filtrable virus. In the investigation of an outbreak occurring in 1939 in a hospital in a city in upstate New York there was suggestive evidence that the infection may have been transmitted from infant to infant by means of improperly sterilized nursing nipples.¹³

Chemical Poisons

In conclusion, I wish to say a few words about gastroenteritis due to chemical poisons in food. In 1928 and 1929 several outbreaks of violent but transient gastroenteritis were studied in New York State, and it was found that the only thing the victims had in common was a history of having eaten at a hotel a few hours prior to onset of symptoms. No one hotel was involved and no particular article of food. Investigation disclosed that in these hotels the same brand of silver polish was being used and that the polish contained sodium cyanide. Elimination of this type of silver polish resulted in cessation of cases among guests.¹⁴ This finding resulted in the establishment of a regulation by the Public Health Council in 1929, prohibiting the use in any eating place of a polish containing a cyanide preparation (Regulation 8, Chapter XIV, Sanitary Code). No outbreaks due to this cause have been discovered in upstate New York since that time.

In December, 1939, an explosive outbreak of gastroenteritis occurred in an institution in Greene County. The outbreak was promptly reported to, and investigated by Dr. Hollis Ingraham, district state health officer of the Kingston District. A total of 69 cases occurred, characterized by headache, nausea, violent and repeated vomiting, abdominal cramps, and, in about half the cases, diarrhea. The patients developed no fever and recovered in the course of about three hours in most instances. The great majority of victims became ill within ten minutes following ingestion of the noon meal. All of the cases occurred among the 143 inmates who ate at the first serving. Many became ill before they could rise from the table and, since the chocolate pudding served as dessert was suspected as being the source of the illnesses, the second shift of 488 inmates were given canned loganberries in place of the chocolate pudding but otherwise were served exactly the same meal. No cases of illnesses developed among this latter group. A better controlled experiment could hardly have been devised, the chocolate pudding obviously was the food responsible for the illnesses, and this was further confirmed by additional epidemiologic data. The remaining pudding had been discarded, but scrapings from a pan were analyzed and it was found that fluorides were present in concentrations of 0.1 to 0.3 per cent. The only poisonous material available in the kitchen was roach powder containing sodium fluoride, and it seemed clear

TABLE 1—REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES NEW YORK STATE, 1931 TO 1940 INCLUSIVE

Year	Number of Cases			Cases per 100 000 Population				
	Trichinosis	Amebic dysentery	Bacillary dysentery	Typhoid fever	Trichinosis	Amebic dysentery	Bacillary dysentery	Typhoid fever
1931	90		167*	1,133	0.7		1.3*	8.9
1932	69		186*	1,049	0.5		1.5*	8.2
1933	145	87	258	976	1.1	0.7	2.0	7.6
1934	198	107	561	670	1.5	0.8	4.3	5.2
1935	241	56	743	631	1.8	0.4	5.7	4.8
1936	170	54	489	592	1.3	0.4	3.7	4.5
1937	177	76	1,138	576	1.3	0.6	8.6	4.4
1938	126	88	1,878	521	0.9	0.6	14.1	3.9
1939	126	69	1,300	363	0.9	0.5	9.7	2.7
1940	274	61	845	276	2.0	0.5	6.3	2.0

* Amebic and bacillary dysentery were not tabulated separately prior to 1933

that some of the roach powder had been introduced into the pudding

During the past three years the New York City Health Department has uncovered four outbreaks due to a relatively new food poisoning entity, cadmium poisoning,¹⁵ and Dr Samuel Frant of the Department has kindly permitted me to mention the results of their investigations. The illnesses apparently are similar to those observed in the fluoride poisoning outbreak, with symptoms developing within a few minutes after ingestion of the responsible food or drink and consisting of nausea, vomiting, abdominal cramps, and diarrhea. With one exception, the food or drink responsible was found to be acid in nature (raspberry gelatin dessert, commercial "lemonade" powder containing tartaric acid, and iced tea prepared with lemons), and the preparations had been made in cadmium-plated metal vessels (refrigerator trays or pitchers). In the one exception, ice cubes from a cadmium-plated refrigerator tray had been used to cool homemade punch, and a leak of the sulfur-dioxide refrigerant had occurred that day. Apparently the sulfur dioxide had dissolved in the water being frozen into ice cubes, producing hydrogen sulfite which reacted with the cadmium to produce cadmium sulfite. As a result of this experience, the New York City Sanitary Code was amended in 1939 to prohibit the use of cadmium in utensils or apparatus intended to contain or be in contact with food or drink (Article 9, Section 145). Cadmium has become such a popular plating metal that more outbreaks of this sort may be expected, and this possibility should be kept in mind in the future in the investigation of explosive outbreaks of an afebrile, transient gastroenteritis.

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Discussion

Dr Stanley W. Sayer, *Gouverneur, New York*.—Dr Perkins has presented a most complicated and difficult subject in a masterly manner. Public health workers in the field are constantly being brought in touch with gastrointestinal outbreaks, many of these casually coming to their attention when the outbreak is almost or even entirely over. There is such a variation in symptoms, particularly as far as severity is concerned, that recognition of an outbreak may depend upon the personality and attitude of mind of the physician or health officer.

It appears that church and other organization suppers are hazardous as far as gastrointestinal disease is concerned. This is probably due to the fact that facilities for thorough cooking and cleansing of utensils are not always available and also because of the fact that much of the food is prepared in the homes, some time in advance and under unsatisfactory conditions. In rural areas too, the water supply may be bad. Any public health control over this situation is difficult.

I should like to give further emphasis in relation to an outbreak of trichinosis due to the feeding of raw garbage and the entrails of slaughtered animals back in the same piggery. This is a most pernicious practice and apparently is not an uncommon procedure in smaller piggeries and slaughterhouses. When this practice is followed, a chance infestation of one animal will soon build up infection of every animal in the group.

In one particular outbreak, pork sausage appeared to be brown and well fried, yet the centers evidently were not reached by sufficient heat to

destroy the trichinae. Not long ago there occurred 2 cases of trichinosis from raw pork liver taken for treatment of anemia and prescribed by a doctor. The doctor failed to advise that raw pork liver might be dangerous.

Two outbreaks of considerable magnitude occurred during the Army maneuvers in northern New York last summer. We were informed by Medical Corps officers that diarrhea frequently followed careless washing of mess kits and that often the only thing that will make a man clean in this regard will be an attack of diarrhea. Although dirty mess kits were given as the cause of an epidemic of dysentery in a New York regiment, it was later found to be otherwise.

This regiment apparently did not like the chlorinated water provided and went to a poorly protected well nearby for drinking supply. An investigation carried out after the camp was evacuated indicated that the men had apparently washed their bodies and clothing beside the well. The diarrhea spread throughout the entire regiment and also affected a considerable number in the medical regiment which cared for these men. Bad water discipline was responsible for this Flexner type dysentery outbreak.

The second outbreak occurred among the personnel of the medical regiment of a midsouth

division of 300 men. They stopped enroute at a CCC camp overnight, this camp being located about 100 miles from their final destination. Sandwiches were prepared at this camp so that the men would have sufficient to eat until their camp could be set up and mess prepared.

Many of the sandwiches made were of egg and mayonnaise. The weather was warm and humid and the sandwiches were transported without refrigeration and eaten about fifteen hours after they had been prepared. Four hours later men were taken violently ill with nausea, vomiting, profuse diarrhea, abdominal pains, prostration, and dehydration. Some of the patients collapsed while walking about the grounds. Eighty were affected, most of them recovering within forty-eight hours. A few of them remained ill for several days.

It was found that one of the CCC boys who prepared the food had an infection in one of his hands which upon examination yielded *Staph aureus*. This was probably a staphylococcus toxin outbreak.

Although the three circumstances discussed were apparently traced to their source without too much difficulty, we are not so fortunate many times. It occurs so often that even after considerable time is spent in investigation the source and cause are unobtainable.

LABORATORY AIDS IN THE DIAGNOSIS AND CONTROL OF ENTERIC DISEASES

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FOR practical purposes, food-borne enteric diseases may be broadly classified into four groups: those induced by protozoa and helminths, by bacteria or their products, by chemical poisons, and those of unknown etiology.

Protozoa

One of the most important enteric diseases incited by a protozoan is amebiasis. The only ameba definitely known to be pathogenic for man is *Entamoeba histolytica*, although other species have been so considered by some authors.¹ Its rarity in the North should not cause us to forget that amebiasis exists here. Chronic carriers passing cysts in the feces may transmit the disease to others. Patients in the acute or subacute stage passing only motile forms, the so-called trophozoites, are not infectious for others, since the motile

amebas when ingested are killed by the gastric juices and fail to reach the intestine. By the examination of fresh stools and preparations stained with Heidenhain's hematoxylin, the laboratory worker can distinguish between *E. histolytica* and nonpathogenic forms and between motile forms and cysts. Various concentration methods aid in the finding of small numbers of cysts in the stools. Cultural methods are successfully employed in larger laboratories. The complement fixation test performed with the patient's serum is not in general use.² In this enteric disease more than in any other, it is important for the patient and the laboratory worker to be brought together, since only by the examination of absolutely fresh material can the laboratory diagnosis of amebiasis be satisfactorily undertaken.

Usually considered with *E. histolytica* are *Balantidium coli*, *Giardia lamblia*, and *Trichomonas intestinalis*. The clinical significance of these protozoa does not compare with that of *E. histolytica*, but they are said oc-

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From the Division of Laboratories and Research, New York State Department of Health.

asionally to incite dysentery. A laboratory equipped to diagnose amebiasis should be in a position to recognize these protozoa also.

Helminths

Infestation by most of the intestinal parasites can be determined by the discovery of the characteristic ova, larvae, adult worms, or worm segments in the stools, often accompanied by a moderate or marked eosinophilia. Most of the parasites are seen rather infrequently in up-state New York. Tapeworm infestation can easily be diagnosed if worm segments and ova are sought in the stools. A red blood count is helpful in suspected cases, since a primary type of anemia is not uncommon, especially when infestation is with the fish tapeworm, *Diphyllobothrium latum*. In the case of echinococcus cysts, a complement fixation test with the patient's serum, using cyst fluid as antigen, is employed as an aid in diagnosis in areas where this lesion is frequently encountered. A skin test is also done using material from the same source. At operation, the fluid can be examined and a fragment of the cyst wall may be removed for histologic study. The appearance is characteristic, especially when scolices are present.

Trichinosis is induced by the ingestion of encysted forms of *Trichinella spiralis*, lodged in infested pork that has been improperly cooked. Suspicious clinical symptoms coupled with the finding of leukocytosis and eosinophilia should lead one to submit for laboratory examination the pork product believed to be implicated. By means of digestion with pepsin, it is possible to release the encysted trichinellae from the muscle fibers and to collect them for examination at the bottom of a settling tube. The same result can be obtained by examining serial histologic sections of a sample of meat, but the method employing digestion is less time-consuming. The inoculation of rats with suspected material and the subsequent examination of the musculature by methods outlined above may demonstrate the presence of the encysted forms in infested meat when other methods fail. According to Schwartz^{2,4} of the United States Department of Agriculture, the examination of pork for *T. spiralis* in connection with routine inspection of meat would be too costly and would give a false sense of security. He recently expressed this opinion before the New York State Trichinosis Commission.⁵ The trichinellae can, in rare instances, be demonstrated in stools and even in

blood in the diarrheal stage of the infection. A biopsy specimen of muscle from a human case may be examined histologically, and at autopsy the larvae are most easily found in the muscle of the diaphragm. Reports, particularly from the U. S. Public Health Service, indicate that skin testing with an antigen prepared from this parasite may be helpful in the diagnosis of a suspected case. The antigen is not yet in common use, however. The skin testing of hogs has not been found to provide a reliable index of the presence or absence of the disease. The reliability of precipitin and complement fixation tests with the patient's serum is open to question.

Bacteria

The largest and most important group of enteric diseases is composed of those induced by bacteria or their products. Cholera has lost all but its historical importance for us. The isolation of the cholera vibrio from fresh stools and its identification by specific tests present no special problem for the experienced bacteriologist. It is well known, however, that the vibrio cannot always be found in the stools of clinical cases in an epidemic.

Typhoid fever has become relatively infrequent as a result of continued watchfulness on the part of health authorities and physicians and because of improvements in sanitation. In the diagnosis of the disease and in the control of the carrier state in a larger number of individuals, the laboratory plays an important role. It is well known that *B. typhosus* is often found in the blood during the first week of illness and can usually be readily cultivated by the ordinary blood-culture methods or by culturing the clot after the serum has been removed for use in the agglutination test. Typhoid bacilli in stools or urine are always significant, since they are found only in specimens from cases or carriers. There is evidence that healthy individuals may become transitory carriers and, therefore, it is particularly important that a person be declared a chronic carrier only when the typhoid bacillus has been found in the feces or urine for a considerable time.

When the bacteriologic examination cannot be undertaken promptly after collection, buffered 30 per cent glycerol solution provides a medium in which the recognized bacillary incitants of enteric disease and nonpathogenic species in feces and urine are maintained in a relatively stable ratio. Best results are obtained when feces approximately the size of a large pea are carefully suspended in the glycerol.

erol solution. When urine is submitted the jar should be nearly filled. Usually, the sole focus of infection in a chronic carrier is the gallbladder. The examination of material obtained by duodenal drainage provides the only reliable basis for advocating cholecystectomy in an attempt to cure such a carrier. This type of examination is also important in the release of a carrier after cholecystectomy. The selective mediums now available make the isolation of bacillary incitants of enteric disease a less formidable task than heretofore.

Differentiation of strains of *B. typhosus* into types by determining their sensitivity to the lytic effect of various bacteriophages was first reported by Craige and Yen,^{6,7} of Toronto, in 1937. Lazarus,⁸ of Denver, was the first in the United States to report on the typing of a large number of strains. The procedure is such that it should be undertaken only in the larger laboratory where the volume of work justifies the maintenance of the bacteriophages and the standard cultures employed for purposes of control. The practical advantage to the epidemiologist of the typing of typhoid bacilli is obvious. Persons infected by a chronic carrier have always been found to harbor typhoid bacilli of the same type as those discharged in the feces of the carrier. Just as is the case with blood typing in medicolegal cases involving paternity, the finding of the homologous type of typhoid bacillus in the feces of a carrier believed to be responsible for a given case of typhoid fever does not positively incriminate him, but the finding of a heterologous type definitely relieves him of responsibility for the infection of that patient.

The value of the agglutination test as an aid in the diagnosis of typhoid fever has for many years depended upon the demonstration of two types of agglutinative properties in patients' serums—flagellar or floccular agglutination demonstrated with living or formalin-treated suspension of an actively motile strain of *B. typhosus*, and somatic or granular agglutination demonstrated with a living suspension of a nonmotile strain or an alcohol-treated suspension of either a motile or a nonmotile strain. Both types of clumping in a 1:80 or higher dilution are rarely observed in serums other than those from patients having typhoid fever, unless typhoid vaccine has been recently administered. Indeed, both floccular and granular agglutination in a high dilution of serum occurs rarely in recently vaccinated cases, but the fact

that febrile diseases other than typhoid may increase the agglutinating activity of the serum of recently vaccinated individuals calls for an accurate history and caution in evaluating the result of the test. Usually, floccular agglutination alone in a serum dilution of 1:80 or higher is induced by vaccination or is an indication of typhoid fever in the past or of an existing carrier condition. Granular agglutination in a 1:80 or greater dilution and little or none of the floccular type may occur in serums from patients having typhoid fever, but such findings are most commonly associated with infections with microorganisms antigenically related to *B. typhosus* and, thus, suggest the possibility of paratyphoid fever. When Felix and Pitt⁹ first described the Vi (virulence) antigen in typhoid bacilli, they not only established its antigenic individuality but also suggested that it was associated with the virulence of this species. We know now that virulence is not always imparted by the presence of this antigen. However, it is of significance that Vi agglutinative properties can be demonstrated in the serums from a high percentage of typhoid carriers and in few of those from non-carriers.^{10,11,12} This is a somatic antigen and is agglutinated in a granular manner. It is heat-labile, and active immunization against typhoid fever does not usually result in the development of Vi agglutinating activity in the serum. Thus, the presence of serologic activity against the Vi antigen takes on added significance.

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is often laborious and time-consuming. Their classification in the Kauffmann-White Schema^{13,14} is based upon the fact that slight differences in the antigenic structure of the cell bodies and flagella of individual types can be detected by agglutination in highly specific serums. Dr F. Kauffmann at the International Salmonella Center, Copenhagen, Denmark, has supplied small amounts of the necessary serums to a few laboratories in this country which have been designated Salmonella centers. One is located at Beth Israel Hospital in New York City and one in the Division of Laboratories and Research of the New York State Department of Health. From the standpoint of treatment, the final identification of strains in this group is of doubtful importance. However, as an aid to prognosis of the probable severity of the infection, typing of strains is helpful, since certain members of this group characteristically induce more violent gastrointestinal and systemic disturbances than others. To the epidemiologist, the identification of strains may be of the greatest aid in establishing a connection between cases of enteric disease and the presumptive source of infection. Some members of this group invade the blood stream, and hence the cultural examination of blood during the early stages of illness may be of value. The examination of feces and urine is subject to the same recommendations as in the case of typhoid fever. Some of the species in this group have been associated with localized infections, such as osteomyelitis and empyema, and have been isolated occasionally from sputum from patients having pneumonia¹⁵ and from spinal fluid from cases of meningitis. Agglutinative properties for the inciting microorganism are usually demonstrable in the patients' serums but, because of the large number of species in the group and their close antigenic relationship, agglutination is usually of little value as an aid in diagnosis.

Bacillary dysentery is as common in this state as amebic dysentery is uncommon. However, the differential diagnosis is of great importance, and the laboratory is in a position to confirm the clinical differentiation through a study of the stools. For evidence of bacillary dysentery, the examination of fresh stools is preferable but, if the specimen must be sent by mail, it should be suspended in buffered 30 per cent glycerol in salt solution. Hardy and his co-workers^{16, 17, 18} have published an excellent series of papers that link modern laboratory and epidemiologic

methods in the study of acute diarrheal diseases. They have made use of the method of rectal swabbing and direct plating on selective mediums for the isolation of dysentery bacilli.

Dysentery bacilli are rarely, if ever, found in blood or urine. The agglutination test with patients' serums is of little value because reactions are not ordinarily obtained sufficiently early in the disease to aid in diagnosis and because so many types of dysentery bacilli that vary in their antigenic properties are recognized. Fortunately, *B. dysenteriae* Shiga, the most virulent of the dysentery bacilli, is extremely uncommon in New York State. A large group of strains that ferment mannitol and are antigenically related is known as the Flexner group. Members of this group and also *B. dysenteriae* Sonne are common in this area. Although the Schmitz and Newcastle types are less common than the Flexner and Sonne, extensive outbreaks incited by them have occurred in institutions in New York State.^{17, 19, 20, 21}

Cases of severe enteric disease, usually occurring in children, in which the only significant microorganism appears to be an unidentified species of gram-negative bacillus have occurred frequently enough and with a sufficiently high mortality rate to command serious attention. The characteristics of this microorganism and the lesions induced by it have been described by McIver and Pike,²² Schleifstein and Coleman,²³ and Curphey.²⁴ Other species that have occasionally been thought to incite enteric disease are *B. morganii* No. 1, *B. alkalescens*, and *B. dispar*. These are also frequently found in feces from normal individuals, and their significance has not been established.

Certain food-borne diseases in which the incitant enters by way of the gastrointestinal tract have been omitted for the sake of brevity and because the appropriateness of their inclusion in this symposium on food-borne diseases of the gastrointestinal tract is open to question. I refer especially to undulant fever, milk-borne streptococcal infections, intestinal tuberculosis, and, just possibly, poliomyelitis.

Bacterial Toxins

Botulism is induced by the ingestion of bacterial toxins and, although comparatively rare, is of especial importance because of the high mortality rate. The attempted demonstration of the presence of botulinus

erol solution. When urine is submitted the jar should be nearly filled. Usually, the sole focus of infection in a chronic carrier is the gallbladder. The examination of material obtained by duodenal drainage provides the only reliable basis for advocating cholecystectomy in an attempt to cure such a carrier. This type of examination is also important in the release of a carrier after cholecystectomy. The selective mediums now available make the isolation of bacillary incitants of enteric disease a less formidable task than heretofore.

Differentiation of strains of *B. typhosus* into types by determining their sensitivity to the lytic effect of various bacteriophages was first reported by Craigie and Yen,^{6,7} of Toronto, in 1937. Lazarus,⁸ of Denver, was the first in the United States to report on the typing of a large number of strains. The procedure is such that it should be undertaken only in the larger laboratory where the volume of work justifies the maintenance of the bacteriophages and the standard cultures employed for purposes of control. The practical advantage to the epidemiologist of the typing of typhoid bacilli is obvious. Persons infected by a chronic carrier have always been found to harbor typhoid bacilli of the same type as those discharged in the feces of the carrier. Just as is the case with blood typing in medicolegal cases involving paternity, the finding of the homologous type of typhoid bacillus in the feces of a carrier believed to be responsible for a given case of typhoid fever does not positively incriminate him, but the finding of a heterologous type definitely relieves him of responsibility for the infection of that patient.

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Discussion

Dr Samuel Frant, *New York City*—It is manifestly impossible to discuss in detail a paper of such broad scope as the one just presented. The authors have given a concise review of the role of the laboratory and the part it plays in the investigation of enteric disorders. The opinions expressed agree with those held by the New York City Department of Health and may be taken as a fair statement of modern public health practice.

As laboratory methods become better developed, new fields of thought are opened up. I should like to discuss briefly on one such aspect of the role of the laboratory. You are no doubt well aware of the increased ease with which incitants of enteric disease can be demonstrated by the newer mediums, such as bismuth sulfite, desoxycholate citrate SS Agar, introduced by Difco, and tetrathionate broth. As a result of the use of these mediums, our department laboratory is reporting at least 100 per cent more positives than before.

The reporting of this increased number of positives in cases and contacts of typhoid fever has led to new situations and the raising of new problems.

1. Every case of typhoid fever reported in New York City is followed for one year after original termination. Stool specimens are obtained every three months in order to determine complete freedom from the carrier state in these recovered cases. An increasing number of individuals with positive specimens is now being found for the first time, as long as six months and nine months after clinical recovery and discharge from isolation by negative laboratory findings. There is evidence, therefore, that the carrier state following an attack of typhoid fever is probably much more common than was formerly realized.

2. In the investigation of every case of typhoid fever in New York City, every household contact is required to submit a stool specimen. We are now getting many positive isolations in well contacts to these cases. These contacts at no time have had typhoid fever, nor do they present any symptoms at the time of the positive specimens or subsequently. In many instances, after one or two weeks of having positive stools, these contacts clear up completely, and repeated examinations make it likely that they are probably not chronic carriers.

However, up to the present time the New York City Sanitary Code regulations require that any individuals with positive stools and no previous history of typhoid fever be put under legal restrictions as chronic typhoid carriers. Certainly, some modification of these regulations must be made to take care of this new situation. Other health authorities are having this same experience. No doubt from free discussion of this situation, procedures for the fair and proper treatment of such individuals will be evolved.

toxin in canned food is time-consuming and not worthwhile unless symptoms suggestive of botulism are present in individuals who have partaken of it. *Clostridium botulinum* or its toxin may be found in the patient's feces, and the toxin may be demonstrated in the blood by animal inoculation, providing antitoxin has not been administered. In any case, treatment must be initiated before results of the laboratory examination can be obtained. Food or feces are cultured anaerobically, and guinea pigs and mice are inoculated to demonstrate toxin. The animals develop muscular weakness and usually die of respiratory paralysis. Strains A, B, and E^{25,26} have been recognized, the products of which have been shown to be toxic for man. Specific antiserum that is effective against one type is ineffective against the others. Therapeutic serums for types A and B are available, a pool of the two being used when the type of the offending toxin is not known.

Other microorganisms are believed either to elaborate or to release, upon their dissolution, enterotoxins. Certain strains of staphylococci have been shown to be responsible for the formation of toxins during growth in many different types of foodstuffs. Many outbreaks of food poisoning, as illustrated by a recent report by Coughlin²⁷ of the New York State Department of Health, have been traced to cream-filled pastries in which enterotoxins of staphylococci were demonstrated. The ubiquitous nature of this microorganism always casts doubt on the significance of its presence, but finding it in large numbers in food that has been adequately refrigerated, after portions thought to have induced food poisoning were consumed, is circumstantial evidence that the strain is enterotoxic. The laborious laboratory procedures necessary to demonstrate such enterotoxins scarcely seem justified. If this information is desired in connection with legal proceedings in damage suits, the work should be undertaken in a laboratory where the examinations can be performed under conditions fulfilling the requirements of a court of law and where appropriate charges can be made.

Other Incitants

A large number of chemicals is capable of inducing gastroenteritis, but the problem of their demonstration and identification by laboratory methods is a toxicologic one for the chemist.

There are enteric diseases associated with

vitamin deficiency and allergy, as well as metabolic and other functional disturbances, that can scarcely be called food-borne diseases. There are also diseases of unknown etiology, some of which may be food-borne, but the diagnostic laboratory furnishes relatively little help except in a negative sense in their diagnosis or control. Examples are epidemic diarrhea of the newborn, discussed by Frant and Abramson,²⁸ also so-called intestinal grip, ulcerative colitis, regional ileitis, and appendicitis.

Finally, the role of the laboratory in assisting the sanitary engineer and the health officer in the prevention of food-borne diseases must not be overlooked. By laboratory examinations in connection with restaurant sanitation, by the search for microorganisms of the coliform group and other evidence of pollution of water, and by bacterial counts in milk and the phosphatase test to determine completeness of pasteurization, the laboratory forms part of the bulwark against the outbreak of epidemics of enteric disease.

Laboratory Service in New York State

The importance of cooperation between the physician and the laboratory deserves emphasis. The physician may contribute to the insuring of optimum results by the selection of the proper outfit for each specimen and by care in the collection of material, as well as by providing pertinent information on the history forms that are provided for this purpose. Clinical data are often essential to the laboratory director for evaluating results obtained with a given specimen, for determining what additional tests should be performed, and for suggesting to the physician further laboratory procedures that might be advisable. Failure to receive adequate clinical information is one of the greatest difficulties a laboratory has to face.

In New York State the major part of the laboratory work under discussion is performed in local approved laboratories under high standards of efficiency. The central laboratory, by collaborating with them, is in a position to assist with special procedures, such as the identification of unusual strains and the evaluation of new methods.

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be evacuated. Not infrequently, the patient feels much better as a result of the first washing-out of the stomach, and the second dosage of soda water seldom requires the coercion that the first did. Often the patient retains most of the second dose. In this case he benefits decidedly from the treatment, since he is now ready to start absorbing water. In many instances the patient does not vomit the soda water originally given him but retains it comfortably. In a short period of time, he feels decidedly better.

It is good policy to evacuate the stomach early in the treatment of any case of food-borne disease of the gastrointestinal tract. There may be times when the stomach tube is necessary for this purpose, especially if there is evidence of the ingestion of chemicals and particularly of poisons.

As soon as the stomach has been evacuated, treatment should be directed to the bowels. Even though the patient has diarrhea, a dose of saline cathartic should be administered. The saline cathartic is preferred because it produces a profuse watery discharge from the bowels with a minimum of cramping and pain. Also, if the patient is suffering from an infective disease such as bacillary dysentery, the addition of Epsom salts to his regimen is particularly valuable. In all cases the dose should be adequate and should be administered promptly.

(2) *Adequate Supportive Measures*—These should be instituted promptly and should include infusions with glucose in normal saline. As a rule, 2½ to 5 per cent solutions of glucose in normal saline are adequate and, according to the condition of the patient, these should be given in amounts from 1,000 to 3,000 cc in twenty-four hours. Whenever possible, it is desirable to use large quantities of fluid by intravenous infusion rather than by clysis, which causes much more distress to the patient. If fluids are given by infusion, it is important that they should be administered slowly, at a rate of not more than 30 to 40 drops per minute.

Blood transfusions are most valuable as supportive measures and should be used frequently. Indeed, they provide one of the most important supportive methods at the disposal of the physician because they serve to give the patient adequate red blood corpuscles as well as proteins.

Heat in various forms constitutes a simple but timely method of supporting the patient. Hot water bottles and warm, light blankets are especially helpful in this connection. Hot

drinks are of great importance if the patient appears to be in collapse. Strong coffee or tea is to be recommended.

Attention to food intake and to fluid elimination is important. As a rule, the diet on the first day or two following the onset of an acute intestinal disease should be light, preferably liquid. It should be wholesome and should contain adequate quantities of proteins and carbohydrates. Fruit juices may include grapefruit, orange, and lemon. A tablespoonful of sugar may be added to the juice of a freshly squeezed lemon, and the mixture may be served to the patient with a spoon. This gives the patient something tart, while the granules of sugar provide something that he can crunch. Fruit juices provide adequate vitamins and carbohydrates, which after all are most important. As a general rule, milk is not well tolerated in the early stages of an acute infection. Since there is a marked difference in the reaction of individual patients to milk, experience with each one must serve as guide to the amount of milk prescribed for the patient's diet. Boiled rice and macaroni may be used for a day or two. Care should be taken to avoid depletion of the patient's protein and vitamin reserves when planning his diet. As rapidly as possible, the patient should be given a more solid diet, including high-protein and high-vitamin foods.

The Treatment of Irritative Lesions of the Gastrointestinal Tract

Irritative lesions of the gastrointestinal tract are generally caused by chemical agents. Chemical irritants have to be dealt with vigorously, and treatment must be directed to whichever drug is suspected.

It is impossible in the scope of this paper to discuss all the chemical agents that may be related to food-borne diseases. The most important, however, is alcohol, which is one of the most common chemical agents responsible for irritative lesions of the gastrointestinal tract. Alcoholism may be either acute or chronic. In the acute stages it is a relatively simple matter to cause evacuation of the gastrointestinal tract and then to give various stimulants such as coffee or tea. Within a short time the patient is on his feet again. On the other hand, when alcohol has been used over a considerable period of time, definite systemic changes take place. While these may be related to the body as a whole, they are chiefly due to the failure of vitamin metabolism of the body. This is especially true of vitamin B₁. There may be a decrease in the

THE TREATMENT OF FOOD-BORNE DISEASES OF THE GASTROINTESTINAL TRACT

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THE treatment of diseases of the gastrointestinal tract calls for a careful case history and accurate diagnosis of the condition present. At the same time, the patient's general condition should be evaluated and all necessary measures should be taken to build up or maintain his strength. With few exceptions there is no specific therapy for the diseases of the gastrointestinal tract. Treatment, therefore, includes general systemic therapeutic principles. Indeed, the first consideration of the physician at all times is the welfare of the patient, and consequently his attention should not necessarily be concentrated upon bacteria, protozoa, or chemical agent. The physician has to treat patients, not diseases.

The differential diagnosis of the various food-borne diseases of the gastrointestinal tract includes

- (1) Irritative lesions
 - (a) Chemical
 - (b) Alcoholic
 - (c) Dietary indiscretions
- (2) Bacillary diseases of bacterial origin
 - (a) Bacillary dysentery
 - (b) Typhoid-paratyphoid group
 - (c) Salmonella group
- (3) Protozoan infections
 - (a) *Endamoeba histolytica*
 - (b) *Giardia lamblia*.
 - (c) *Balantidium coli*

E. histolytica and *Bal. coli* are known to be related to diarrheal conditions, but the evidence in the case of *G. lamblia* is not clear. Most authorities generally consider other protozoan infections of academic interest only, since they are not definitely related to disease.

- (4) Helminthic infestations
 - (a) Trichinosis
 - (b) Bilharzia
- (5) Allergic conditions
- (6) Chronic ulcerative colitis

Fundamental Regimen

The fundamental regimen in the treatment of every case of food-borne disease of the

gastrointestinal tract is relatively simple but must be applied energetically and with a good measure of common sense. It must be remembered that whenever a patient has developed a disease of the gastrointestinal tract there is fundamentally a disturbed physiology of both the stomach and the intestines, including the small bowel as well as the colon. This disturbed physiology may be evidenced by nausea and vomiting, and by distention of the abdomen accompanied by gas, rumbling, and gurgling. Changes in biliary function may become evident and there may be diarrhea. When there is frequent evacuation of the bowels, there may be watery, pea-soup-like stools, which may be of foul odor and may even contain blood or mucus. All these symptoms may be transient or persistent. The fluids of the body are depleted rapidly if these symptoms appear, especially if there is nausea and vomiting with the diarrhea. At the same time there is rapid loss of all the vitamins. Thus, in a matter of hours some patients may be in a serious general condition as a result of a simple dietary upset. In those unfortunate individuals who may be allergic to various foods and whose upset is caused by increased sensitivity to certain articles of diet, generalized symptoms may appear immediately. On the other hand, infection with bacillary dysentery may result in a sudden onset of acute symptoms, which may become exceedingly serious within a few hours. Regardless of the cause of the disease, the fundamental principles of treatment include the following:

(1) *Adequate Elimination*.—This should be prompt and should include both the stomach and the intestinal tract. A simple method of evacuating the stomach is to have the patient drink in rapid succession three large tumblers of tepid water, to each of which a heaping teaspoonful of baking soda has been added. In all probability a large amount of mucus or other irritating material is present in the stomach if the patient is nauseated or vomits. If he vomits immediately after drinking the tepid water and soda, his stomach is emptied of whatever mucus and other irritative material may be present there. If this results, the treatment should be repeated immediately so that all the contents of the stomach will

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of chronic ulcerative colitis. For that reason both conditions may be considered together.

Dosage with Epsom salts has been considered almost specific for acute bacillary dysentery. Used for over a century by physicians experienced in the tropics and in the Orient, the crystals of Epsom salts are administered morning and evening during the first day in a tablespoonful dose to which a small quantity of water is added. On the second day, a tablespoonful of Epsom salts should be given and, depending upon the preference of the physician, may be given as a single dose in the morning or in divided doses throughout the day. It is better to give it as a single dose in the morning because the patient will have several fluid evacuations from the bowels before the day is over, and by nightfall he should be improved. Within forty-eight to seventy-two hours it will be noticed that the patient is having less straining and tenesmus, and the character of the bowel discharge will have changed from a small amount of sticky blood, mucus, and pus to a more copious fluid fecal character. By the third day there will be some evidence of soft, watery fecal discharge which, within another twenty-four hours, will become soft and mushy in character. In the meantime the patient's general condition will be markedly improved, he will be less toxic and the outlook generally will be more encouraging.

Glucose infusions as outlined under general symptomatic treatment are of vital importance at this point. It is necessary to give 2,000 to 3,000 cc of 5 per cent glucose by intravenous infusion in twenty-four hours. In addition, 500 cc of whole blood, either by the direct or indirect method, may be given every day or every other day, depending upon the patient's general condition. The physician should not be misled by a relatively high erythrocyte count because this may represent the result of concentration resulting from dehydration. The patient's general condition is the best guide in the matter of blood transfusions and glucose infusions. It has been noted frequently that there is a more watery discharge from the bowel when glucose infusions are given. This should, however, not alarm the attending physician.

Rest, both physical and mental, is of great importance in the treatment of a patient with an acute bacillary dysentery infection or with chronic ulcerative colitis. The patient is worried and he feels ill, his judgment is not accurate and he is easily irritated by little things. He is soon considered "nervous,"

and frequently nervousness of one sort or another is blamed for his symptoms when, in reality, he is quite naturally "nervous" as the result of bowel movements twenty to thirty times a day. A patient of this sort is benefited most by the administration of adequate sedatives, especially of bromides. Habit-forming drugs, such as codeine and morphine, are to be most scrupulously avoided. The barbiturate group may be used cautiously, but the drugs that should be used are the triple bromides, to which chloral hydrate may be added if necessary. A favored prescription is

R	
Triple bromide	30 cc
Chloral hydrate	20 cc
Elxir of phenolbarbital q s	120 cc
M Sig	One teaspoon q 4 h

For some individuals, it may be sufficient to give 15 or 30 grains of the effervescent triple bromides dissolved in an adequate amount of water. This dose, taken every four hours, is usually sufficient to keep the patient at rest, even though he has to evacuate the bowels. Between evacuations he is able to obtain badly needed rest.

Serum therapy in bacillary dysentery offers a subject for discussion. When introduced a number of years ago, it was generally considered that serum therapy offered one of the most adequate methods of approach to the difficult problem of treating this disease. It was soon found, however, that satisfactory results were obtained only when the dosage was sufficient and when it was administered early. It is generally considered that the serum must be polyvalent in character and administered in large quantities within the first week of the disease. Eighty to 100 cc of polyvalent serum must be given every day for two or three days if satisfactory results are to be obtained. Unfortunately, this dosage is usually followed by severe serum sickness, which may be more difficult to treat than the original disease. For this reason, many who have had to deal with large numbers of cases of bacillary dysentery prefer to depend on the Epsom salts treatment rather than on polyvalent serum.

Chemotherapy has also been explored in the search for a suitable method of treating bacillary dysentery. Within the past few years attention has been focused upon many new chemicals, and in some fields the results have been most gratifying. Drugs of the sulfanilamide group, including not only sulfanilamide but also neoprontosil, sulfapyri-

free hydrochloric acid of the stomach that results in a coincident depletion of the body reserves of vitamin C as well as vitamin B. These cause bleeding from the gastrointestinal tract and also diarrhea, with the development of mucus. Other systemic evidences of vitamin B and vitamin C deficiencies which have to be treated intensively may develop. In the case of vitamin B deficiency, it is urgent that the patient should receive adequate amounts of both thiamine chloride and the whole vitamin B complex. To insure absorption, these should be administered parenterally. Vitamin C is also available for parenteral administration. The dosage of thiamine chloride should be adequate. It should include a minimum of 60 to 120 mg daily for the first week, after which it may be reduced to about 50 mg a day for the next two weeks. One of the vitamin B complex preparations may be given by intramuscular injections. As a rule, 1 or 2 cc are administered daily over a period of weeks. Unrefined preparations of liver extract, administered by injections, constitute the best means of giving the patient the whole vitamin B complex in its natural state.

Irritative lesions resulting from food indiscretions should be treated as acute irritative lesions. Usually the simple evacuation of the gastrointestinal tract both by mouth and by bowel is sufficient.

Diseases Caused by Bacterial Agents

It is not definitely known just what part many of the bacteria of the gastrointestinal tract play in relation to disease conditions, and so consideration will here be limited to those bacteria that are known to cause disease of the gastrointestinal tract.

The bacillary dysentery group of organisms is related to some of the most difficult and severe disease conditions of the gastrointestinal tract. Bacillary dysentery is an acute disease caused by one of the group of organisms included in the Flexner, Shiga, or Sonne groups. Invasions of the gastrointestinal tract by these organisms are characterized by such sudden and dramatic onset that within a few hours the patient is transferred from a well and strong individual into one who is fighting for his life. Symptoms begin with diarrhea with blood, mucus, pus, straining, tenesmus, and toxemia. The patient is rapidly dehydrated and feverish and within a few hours may be having such constant evacuations of the bowels that he is literally "glued to the bedpan." When the physician is confronted with

a patient suffering from these severe symptoms, he should immediately examine microscopically a specimen of the bowel discharges. He should also have an immediate bacteriologic examination made of the stools. The unfortunate victim of bacillary dysentery strains to eliminate as little as a teaspoonful or a tablespoonful of blood, mucus, and pus, which are mixed together into a sticky substance that adheres to the bedpan. If a drop of this discharge is placed immediately upon a slide, covered with a coverslip, and examined microscopically, it will be noticed that there is a myriad of cells of all shapes and descriptions. Under the high dry power of the microscope, specimens prepared in this manner reveal the presence of many round to oval cells, containing as a rule three rather prominent nuclei which mark them as polymorphonuclear leukocytes. These should not be confused with cysts of *E. histolytica*. A differential diagnosis of bacillary dysentery, chronic ulcerative colitis, and amebic dysentery on the basis of the cellular exudates of bowel discharges is made in the work of Bercovitz.¹⁻⁴ In order to make sure of the nature of the exudate, the physician should take another drop of the mucus, which may be mixed with a drop of Löffler's methylene blue, covered with a coverslip, and examined as a wet coverslip preparation. The methylene blue promptly stains the cells of tissue origin. It is possible by this method to demonstrate adequately the polymorphonuclear leukocytes and the denuded, toxic, epithelial cells. When these cells are found in profusion, a preliminary presumptive diagnosis of bacillary dysentery may be made. Appropriate therapy can then be instituted at once. Bacillary dysentery is a disease involving the mucosa of the entire large bowel, which may have single or multiple ulcers as well as diffuse necrosis of the bowel wall accompanied by sloughing. The degenerated, denuded, epithelial cells seen in the microscopic examination of a methylene blue coverslip preparation are the result of this diffuse necrosis of the bowel mucosa. When this condition is present, it must be treated promptly and adequately. Even under the best conditions of therapy it may develop into chronic ulcerative colitis. In fact, many physicians believe that a certain percentage of all cases of chronic ulcerative colitis is secondary to, or results from, an acute attack of bacillary dysentery. The fundamental treatment of bacillary dysentery does not differ radically from the fundamental regimen required in the treatment

clumps of epithelial cells, endothelial cells, and macrophages, are mistaken for trophozoites of *E. histolytica*. One of the most common mistakes is to consider polymorphonuclear leukocytes as cysts of ameba. Furthermore, in spite of the finding of trophozoites of amebas in a bowel discharge, if the patient has not improved within seventy-two hours, digital examination and proctoscopy should be performed, since a bowel malignancy may be present.

Anayodin in enteric-coated tablets, given by mouth, presents one of the most valuable forms of therapy in both the acute and chronic amebic dysentery. The dose in the adult is a total of 100 tablets administered as follows: 3 tablets, three times daily, until the 100 have been consumed. If there is an acute involvement of the bowel, there will be irritation resulting from the anayodin, which contains 25 per cent iodine. This is not a serious condition and usually takes care of itself at the end of the treatment. In some instances, however, the anayodin causes an increase in the frequency of the bowel movements. If this condition becomes too severe, the dosage of anayodin may be reduced temporarily. The use of compounds containing arsenic is to be avoided because of the danger of arsenic poisoning. Many of these preparations have been widely advertised as "nontoxic," but the danger of arsenic poisoning still lurks.

Bal coli infections should be treated in the same way as those caused by *E. histolytica*.

One of the advances that has been made in recent years is in the treatment of *G. lamblia*. Atabrin is now considered almost specific for *G. lamblia* infections. The dose of atabrin and the method of administration are as follows: given in tablets by mouth, each tablet contains 0.1 Gm. of atabrin, 1 tablet is given three times daily after meals for a total of seven days. By that time the infection has usually cleared up. Re-examination of the stools and of specimens by duodenal drainage has failed to reveal further infections with this parasite. A single course of treatment is sufficient in most cases.

Diseases Caused by Helminths

Trichinosis is the most common helminth disease of the gastrointestinal tract caused by food. It results from the ingestion of inadequately cooked pork. There may or may not be gastrointestinal symptoms but, if there are, they are usually of a mild nature and consist of transient diarrhea or a certain amount of nausea and vomiting. Following these

symptoms, there may be some swelling of the face with or without conjunctival hemorrhages, fever, and the development of leukocytosis with an increase in the number of eosinophils. The diagnosis is usually made by intradermal testing, by the precipitin reaction, and by muscle biopsy.

There is no specific treatment for trichinosis infection. All the known chemotherapeutic agents have been tested and found wanting. The disease follows a course of about three weeks' duration, with a decline in temperature by lysis and a gradual return of the patient to health and strength. The use of toxic drugs or poisonous chemicals are definitely contraindicated in trichinosis. The patient needs to be supported, not poisoned. Treatment calls for saline purge, glucose infusions, rest in bed, and adequate high-protein diet.

Gastrointestinal Allergy

There are apparently definite instances of a specific allergic reaction of the gastrointestinal tract as a result of the ingestion of certain foods. As a rule the patient knows what foods may cause this condition. When the patient gives a history that suggests food sensitivity, the physician must investigate the problem thoroughly. It may be necessary to perform various tests or even to do studies with an elimination diet.

Summary and Conclusions

Food-borne diseases of the gastrointestinal tract may be caused by various conditions, including dietary indiscretions, chemical agents, and alcohol. They may be bacterial in origin, while still others may be protozoan or helminthic in origin. Whatever the cause may be, certain fundamental principles in therapy are required. These include:

1. Proper elimination both from the stomach and the bowel.
2. Supportive measures, such as infusions and blood transfusions.
3. Absolute rest, both physical and mental, preferably with the aid of nonhabit-forming drugs.
4. Diet should be high in proteins, total calories, and vitamins.
5. Specific therapy where indicated, e.g., emetine in amebic infections, etc.

When all is said and done, the physician must use common sense in the care of his patient and must remember that his first problem is to maintain the general health of his patient. Treatment of the particular gastrointestinal disease is, of course, impor-

dine, sulfathiazole and, more recently, sulfaguanidine, have been noticed. All these drugs have had their advocates, for some of which spectacular results are claimed. But it is important to stress that before claim is made for the potency of any drug its use should be carefully controlled in a large number of patients over a sufficient period of time. Thus, before the drug is accepted, a stool culture should be made and bacterial counts determined. In addition, a urine examination and complete blood count should be recorded. Following the administration of the drug, the blood level of the drug should be determined. This is relatively simple for a laboratory equipped to deal with ordinary chemical methods, because the sulfone group of drugs can be identified and measured in the blood readily. It is important to make daily readings of blood levels of these drugs as well as daily urine determinations and daily complete blood counts. A daily stool culture and bacterial count in the stool are also vital. At the first sign of toxic symptoms, such as changes in the blood count and the presence of blood, proteins, or crystals in the urine, the drug should be discontinued. Before any positive statement can be made of the efficacy of a chemical preparation, an adequate number of cases should be studied over a long period of time. Until a perfect chemotherapeutic agent has been developed, the wise conservative course to follow is the fundamental regimen already outlined for the treatment of gastrointestinal diseases.

Typhoid fever is one of the most important disease conditions that we have to deal with. At one time it was considered a disease in which the patient had to be starved, but now an adequate diet has been worked out which represents one of the greatest advances yet made in the therapy of typhoid fever. It is now generally accepted that full diet has had much to do with the reduction in the mortality rate of typhoid fever in the past few years. With a better understanding of the diet required by the typhoid fever patient, it has been possible to lessen the severity of his symptoms. Wasting and anemia are never as marked as they used to be. Since the introduction of the high caloric diet, adequately supplemented by the known vitamins and proteins, there has been a marked decrease in the incidence of hemorrhage and perforations. Treatment today is diametrically opposite to that of a decade ago. The problem today is to give the patient as much food as possible. Four thousand calories a day are considered

the optimum, although it is seldom possible to get the patient to take more than 3,000 calories. Together with the high caloric diet, the physician should follow the general fundamental regimen so that the patient's fluid balance is well maintained. The hygiene of the mouth is of great importance. Antipyretics are to be avoided, but tepid, sponge baths may be used as well as alcohol rubs. If the patient is seen before there is danger of perforation, a mild gentle saline laxative may be used, but great caution should be exercised in this connection. Under the adequate dietary regimen of today, the problem of constipation, tympanites, and distention of the abdomen is not so serious as it used to be.

Diseases Caused by Protozoa

The commonest diseases caused by protozoa are the infections resulting from invasions of *E. histolytica* and *Bal. coli*. These two protozoa are known to be pathogenic. *G. lamblia* is another parasite that is frequently found. Although it is not regarded as a pathogenic protozoa, every physician experienced in parasitology has seen instances in which the elimination of the *G. lamblia* from the patient's system has been attended by improvement in his general condition.

Infections with *E. histolytica* are divided into acute and chronic stages, and treatment must be given accordingly. Treatment of the acute condition, in which trophozoites of *E. histolytica* are found in the bowel discharges, includes the use of emetic hydrochloride by subcutaneous injections. This drug should never be given intravenously because of the danger of toxic action upon the heart muscle. The dosage is 0.03 Gm ($\frac{1}{2}$ grain) subcutaneously morning and evening (1 grain daily), until a total of 7 grains has been administered. The blood pressure and pulse should be recorded before the injection of each dose. If there is a marked change in the blood pressure or pulse rate at any time, the administration of the subsequent dose should be omitted. In the course of treatment of acute amebic dysentery the most dramatic improvement should occur within forty-eight to seventy-two hours. If there has been no definite change in the patient's condition by the end of the fourth day, careful re-evaluation of the entire case should be made. If possible, stool specimens should be re-examined not only with fresh preparations but also with Lugol's solution and with methylene blue so that a careful study can be made of the cellular exudates. Frequently, cells of tissue origin, such as

abscess. In addition, it is essential to give a subsequent course of anayodin, even where amebas are not demonstrated in the feces. The hepatic involvement always originates in the colon.

Data concerning the use of the specifics for helminthic infestations are available in various texts. I will make only one general observation. In the treatment of metazoal infestations, it must be remembered, in contrast with protozoan and bacterial infections, that the parasites do not multiply in the host once the infestations are established. Furthermore, they have

a limited life span. Consequently, a therapeutic result short of complete elimination of the parasites is not, as with bacteria, a total failure. If 90 or 95 per cent of the parasites are eliminated, the body will usually be able to cope with the few remaining organisms until such time as they die a natural death. Thus, for example, if after an anthelmintic is given for hookworm a few ova are still found in the feces, it is not essential to repeat therapy immediately. The potential toxicity of the therapy may be more serious than the disturbance caused by the few remaining parasites.

TO STRENGTHEN THE NATION BY BETTER DIETS

A campaign aimed at correcting the faulty diets of the American people by educating them through the various mediums of public information such as newspapers, magazines, and radio on the proper selection of food is being planned as a part of the national defense program, Dr. Russell M. Wilder, Rochester, Minnesota, reports in the March-April issue of *War Medicine*, published by the American Medical Association, Chicago, in cooperation with the National Research Council, Washington, D. C.

"Famine has always contributed to defeat of armies and subjugation of nations," he says. "This long has been recognized, but in the past it was mistakenly thought that famine could be prevented if only the supply of food sufficed. The newer knowledge teaches that the nutritive quality of the foods supplied is of the utmost importance.

He says that a report, "based on food purchases by large samples of the urban and rural populations of the United States shows that no more than a quarter of the families of the United States have diets that can be rated as good, that little more than a third have diets rating as fair, and that another third or more have diets classed as poor. I have heard expressions of skepticism about these conclusions, but support for them comes from the findings of many independent dietary surveys in which the foods actually eaten have been measured and the persons examined by physicians.

"The committee has presented detailed proposals for organizing the communities of the nation in a wide nutritional education campaign to bring into active participation patriotic groups, labor and religious bodies, fraternal orders, and organizations of churches, of women, and of young persons.

"The committee also proposes stimulation of research involving combined nutritional and social studies of selected communities to determine what articles of food are selected and what are rejected by food folkways and to ascertain by physical tests the effect of such traditional habits on the organism.

"The Committee on Food and Nutrition of the National Research Council, through a subcommittee, is concerning itself with problems of procurement of concentrated sources of nutrients, such as powdered milk, yeast, vitamin concentrates, and synthetic vitamins. Enormous supplies of them will be required here or abroad, whether the war comes to American shores or not."

Another subcommittee, in cooperation with the Committee on Industrial Medicine of the Committee on Health and Medicine, has to deal with the special nutritional requirements of industrial centers.

"One cannot put into heavy industry a man who has been subsisting on a deficient diet and expect efficiency unless one first builds him back into an efficient human machine," the author says.

"PTOMAINE POISONING" A MYTH

"Ptomaine poisoning doesn't exist," Dr. Dorothy V. Whipple, Washington, D. C., declares in the April issue of *Hygeia, The Health Magazine*. She explains that illness caused by eating food that is not wholesome is not due to the presence of ptomaines in the food and should more accurately be termed food poisoning than ptomaine poisoning.

"Ptomaine," the physician continues, "is a word for substances that form in decomposing foods. There are many different compounds that come under the general term ptomaines, but they all have in common the property of being made by bacteria out of decomposing

protein. Some of these ptomaines have distinct odors and tastes, which are largely responsible for the characteristic flavor of putrid food. However, unbelievable as it may seem to many people, the ptomaines in such food, even when the food is eaten in large quantities, produce no ill effects in the human body."

Dr. Whipple lists as the cause of food poisoning: (1) The food eaten may itself be naturally poisonous, (2) bacteria may have been made poisonous substances in once wholesome food, (3) chemical poisons may have been accidentally introduced into the food, or (4) bacteria may have been allowed to grow in the food.

tant, but its success depends in no small measure upon the physician's ability to maintain the general condition of the patient

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Discussion

Dr Howard B Shookhoff, *New York City*—It is a great pleasure to discuss this comprehensive paper presented by Dr Bercovitz. I shall confine my remarks primarily to the animal parasites that involve the gastrointestinal tract.

These infections and infestations will assume more and more prominence in the field of medical practice in the months to come. The ever increasing movement of persons among the countries of this hemisphere, as a result of the present political conditions, will lead inevitably to the appearance of a greater number of cases of so-called tropical diseases outside the usual endemic areas. The practicing physician must become increasingly aware, when gastrointestinal symptoms present themselves, of the possibility of encountering conditions such as amebiasis, giardiasis, or strongyloidiasis, remembering that diarrhea is not the only indication for an examination of the stool. The great importance of detecting these conditions lies in the fact that effective specific therapy is available in almost every instance.

I must pause here to underline Dr Bercovitz's remarks to the effect that we must treat the patient as well as the parasite. The very availability of specific chemical agents tends to make us forget measures that are nonspecific but important. Virtually every pathogenic invasion of the gastrointestinal tract entails systemic disturbances. If we neglect these, we not only fail to get a complete therapeutic result but we increase the possibility of toxic effects from the specifics employed. In addition, it must be emphasized that specifics such as emetine and founadin are not, in themselves, parasiticides in the concentrations occurring in the host but require the cooperation of the resistance mechanisms of the host. Where systemic disturbances are neglected, these mechanisms cannot act with optimal effect.

It is of great importance that the specific therapy of diseases caused by animal parasites be intelligently administered. I say this because the symptoms of such diseases are often ill-defined and are frequently found not alone but in combination with other diseases. Often, one cannot say with certainty that the clinical picture presented is due to the parasite encountered until relief of symptoms has been produced by a

course of specific therapy. In other words, the therapy constitutes a diagnostic procedure as well.

The most important animal parasite found in this climate is *E. histolytica*. Yet, despite the Chicago epidemic of 1933, amebiasis is still one of the forgotten diseases. Many still do not appreciate its frequency or the fact that it may be responsible for a wide variety of clinical pictures. True dysentery occurs actually in a minority of cases only. While the diagnosis of the condition requires considerable technical experience, the principles of therapy should be more generally known. I should like to amplify a little Dr Bercovitz's remarks. Anayodin is the drug of choice. Personally, I prefer to start with 3 tablets the first day, 6 the second, and then 9 a day thereafter. Whenever there is active diarrhea, fever or other evidence of systemic involvement, or doubt as to the diagnosis, a course of emetine should be given first. But emetine alone should never be relied upon to produce a lasting cure. In cases with marked involvement of the lower colon or in cases that fail to respond to the oral administration of the drug, it is desirable to secure a greater concentration of the agent in the colon by the use of retention enemas. These consist of 200 cc of a 2½ per cent solution, given daily for a period of ten days. A cleansing enema of sodium bicarbonate solution precedes the retention enema.

For resistant cases the combination of these retention enemas with the oral administration of emetine bismuth iodide is advisable. It is worth pointing out in passing that iodism is not seen with anayodin therapy.

Liver abscess, the most important complication of amebiasis, is usually regarded as a surgical condition. Actually, recent writings such as those of Manson-Bahr point out that the majority of cases respond either to emetine alone or to the combination of closed aspiration and emetine. I have recently reviewed 15 cases of amebiasis of the liver treated at the Presbyterian Hospital in New York City during the past ten years. The findings are extremely instructive. In only 1 case was surgical drainage employed. This terminated fatally, probably because the etiology was not recognized and no emetine was administered. Two cases were successfully treated with two or three aspirations plus the administration of emetine hydrochloride. The remaining 12 cases responded to one or more courses of emetine without requiring aspiration, even where the clinical picture pointed to abscess formation.

Thus, when the diagnosis of amebiasis of the liver is suspected, a course of emetine is always indicated, even though real evidence of abscess formation is apparent. Where an exploratory laparotomy reveals a liver abscess, a course of emetine should always be given, even though amebas are not found in the stools or abscess contents—as is often the case in amebic liver

played a significant role in American military medicine

In turning now to the present war situation there is no reason to believe that gastrointestinal problems will not loom large in our mobilization effort no matter whether this will be consummated in our own country or on foreign soil. It must be understood that our entire military policy is directed to the creation of effective fighting field forces, so that we must always think in terms of combat conditions. In this connection we are fortunate in having available the recent experience of the British Army. In an article published in December, 1940, Payne and Newman² report that early in the war it was noticed that indigestion appeared to present the biggest medical problem among the sick invalided back to England from the British Expeditionary Force in France, and the Royal College of Physicians was asked to investigate the matter.

The results of the investigation up to the time of publication of this preliminary report are summarized as follows: (1) Eighty-nine per cent of the cases investigated proved to be gross organic disease, there was little evidence of minor dyspepsia. (2) Almost all of the organic lesions found in the cases investigated were ulcers, and the majority of ulcers were duodenal. (3) Ninety-two per cent of the ulcers had been present before the war started, and only 8 per cent appeared to have originated after enrollment in the army. (4) In about 40 per cent of the cases the onset of the ulcer occurred before the age of 25. (5) A check on the type of physical examination received by men who later developed ulcers or a recurrence of former ulcers showed that a small number of them had been examined rather hastily and incompletely but that the majority had received careful attention before being admitted to the army. However, few had been asked specifically concerning previous gastrointestinal disease by the army examiners. Some men had obvious scars that might have disclosed their conditions had the examinations been more searching in this respect.

From present indications it seems quite possible that this experience of the British may well forecast our own situation and that among other forms of preparedness in this regard we should not neglect the continued development and maintenance of a strong section of gastroenterology within the Medical Department of our Army.

Gastroenterology in the American Army Today

Historical—The utilization of gastroenterologists in the United States Army dates back to World War days when, under the direction of Col Seale Harris in 1917, the Surgeon General's Office set about the task of assigning a specialist in this field to each of the thirty-three base hospitals in this country. Although the authority for this type of assignment was discontinued before the end of the war, the idea apparently bore fruit, for special gastrointestinal services were continued in the organization of the fixed general hospitals of the Army. Such services have functioned successfully in each of the four large hospitals caring for general medical cases—namely, Walter Reed, Letterman, William Beaumont, and Fort Sam Houston, where approximately 10 per cent of the beds were set aside for alimentary cases.

The final step in the utilization of gastroenterologists and the recognition of this specialty as an integral part of the medical service of general hospitals took place on July 25, 1940. On this date the War Department issued a Table of Organization for the General Hospital, known as No 8-507. According to this directive, the medical service includes, in addition to 1 lieutenant-colonel as chief and 1 major as assistant chief, 6 majors as chiefs of the following sections: gastroenterology, neuropsychiatry, general medical, cardiovascular, communicable disease, and (sick) officers. It also includes 9 captains as ward officers and internists with training in tuberculosis, neuropsychiatry, allergy, dermatology, metabolism, gastroenterology, cardiology, neurology, and contagious diseases and, finally, 4 lieutenants as ward and assistant ward officers. In this way gastroenterology is assigned its proper place among the chief subdivisions of internal medicine and is allotted its proper quota of trained medical officers.

Personnel—The officer personnel for the section of gastroenterology can now be secured from rosters of Regular Army or Reserve officers already qualified in this work. If additional officers are required to meet the needs of the present emergency, they may be secured from the lists of available civilian physicians now being assembled by the American Medical Association from the responses to the questionnaire recently distributed. It may here be noted that the American Gastroenterological Association has

ROLE OF GASTROENTEROLOGY IN AMERICAN MILITARY MEDICINE

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THE role played by diseases of the digestive tract in American military history is as old as the country itself, the Continental Army having suffered heavily from typhoid fever* and dysentery during the Revolutionary War. Available statistics for the War of 1812 showed that dysentery and diarrhea probably led all other diseases. Following this conflict, a work was published on gastric physiology entitled *Experiments and Observations on the Gastric Juice*, (1833) which became one of the classics of our literature. The fact that this remarkable contribution was made by a medical officer, Dr William Beaumont, while on duty at an isolated frontier post of the United States Army makes it a source of enduring pride to American military medicine.

In the Mexican War dysentery, yellow fever, and malaria were the chief disabilities, whereas in the Civil War diarrhea and dysentery were the most common causes of mortality from disease and, following tuberculosis, the most important cause of discharge for disability in the Union forces. The intestinal fluxes produced over 1,500,000 casualties among the white troops in the northern armies, the annual admission rate per 1,000 being 876 and the death rate being 10.37. The total deaths in the Federal armies alone were over 57,000 or the equivalent of about four of our modern streamlined infantry divisions.

Following the Civil War, Woodward's classic volume appeared on the "alvine fluxes" as a part of the monumental *Medical and Surgical History of the War of the Rebellion* (1870-1875).

In the Spanish War the admission rate for diarrhea, dysentery, and intestinal diseases was 402, but the death rate per 1,000 had decreased from the Civil War level to 1.9. During and following the Spanish War and the Philippine Insurrection, the Medical Department of the Army made additional important contributions to the control of digestive disorders. Much, although not all, of this work

was accomplished by the appointment of specially qualified officers and their organization into boards for the study of special diseases.² One need only mention the names of Walter Reed and F. F. Russell in connection with the study and prophylaxis of typhoid fever, R. P. Strong in animal parasites, D. F. Craig, R. P. Strong, and W. E. Musgrave in the diagnosis and treatment of bacillary and amebic dysentery, Bailey K. Ashford in the discovery of the role of ankylostomiasis in the production of Puerto Rican anemia, and E. B. Vedder, W. P. Chamberlain, and James M. Phalen in the study and control of beriberi in our Philippine Scouts. It is a matter of pride to us all that many of these studies had not only local and military value but worldwide and general usefulness as well.

During the World War the admission rate for the diarrheal diseases was as low as 34 per 1,000 and the death rate 0.08 per 1,000. These figures for the American troops are probably the result of favorable environment since it should not be forgotten that British troops, stationed in the Dardanelles, had an admission rate of 254 and a death rate of 6.9 per 1,000 for dysenteric affections.

Turning to the military establishment in time of peace we find that according to the latest annual report of the Surgeon General (for 1939), the international class, designated "diseases of the digestive system," constituted the most common cause of admission, the rate for 1938 being 115.9. In that year these diseases stood third as a cause of death and of noneffectiveness.

During the recent First Army Maneuvers held in the northern part of New York State in 1939 and 1940, diseases of the digestive system led all other medical conditions admitted to the First Evacuation Hospital serving these troops. In 1939 alimentary diseases constituted about one-third of all medical cases, whereas in 1940 they constituted three-fifths.

The unusual proportion in 1940 was due to an epidemic of bacillary dysentery encountered during the last maneuvers. From the above brief review it seems reasonable to conclude that from the earliest times to the present, in peace as in war, digestive diseases have

Chairman's address Section on Gastroenterology and Proctology Annual Meeting of the Medical Society of the State of New York, Buffalo, April 30, 1941.

* Although the "jail fever" of that period is usually considered typhus, much of it according to Ashburn¹ was in reality typhoid.

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Gastroenterology in the American Army Today

Historical—The utilization of gastroenterologists in the United States Army dates back to World War days when, under the direction of Col. Seale Harris in 1917, the Surgeon General's Office set about the task of assigning a specialist in this field to each of the thirty-three base hospitals in this country. Although the authority for this type of assignment was discontinued before the end of the war, the idea apparently bore fruit, for special gastrointestinal services were continued in the organization of the fixed general hospitals of the Army. Such services have functioned successfully in each of the four large hospitals caring for general medical cases—namely, Walter Reed, Letterman, William Beaumont, and Fort Sam Houston, where approximately 10 per cent of the beds were set aside for alimentary cases.

The final step in the utilization of gastroenterologists and the recognition of this specialty as an integral part of the medical service of general hospitals took place on July 25, 1940. On this date the War Department issued a Table of Organization for the General Hospital, known as No. 8-507. According to this directive, the medical service includes, in addition to 1 lieutenant-colonel as chief and 1 major as assistant chief, 6 majors as chiefs of the following sections: gastroenterology, neuropsychiatry, general medical, cardiovascular, communicable disease, and (sick) officers. It also includes 9 captains as ward officers and internists with training in tuberculosis, neuropsychiatry, allergy, dermatology, metabolism, gastroenterology, cardiology, neurology, and contagious diseases and, finally, 4 lieutenants as ward and assistant ward officers. In this way gastroenterology is assigned its proper place among the chief subdivisions of internal medicine and is allotted its proper quota of trained medical officers.

Personnel—The officer personnel for the section of gastroenterology can now be secured from rosters of Regular Army or Reserve officers already qualified in this work. If additional officers are required to meet the needs of the present emergency, they may be secured from the lists of available civilian physicians now being assembled by the American Medical Association from the responses to the questionnaire recently distributed. It may here be noted that the American Gastroenterological Association has

appointed a Committee on Military Preparedness, which is now actively helping in the selection of qualified specialists

The enlarged enlisted and nursing personnel required for the Section of Gastroenterology will be secured from the usual sources—namely, the operation of the Selective Service Act in the case of the former and the American Red Cross in the case of the latter

Relation to Other Services—Close cooperation with other hospital services is necessary for both diagnosis and treatment. Among the most important contacts of the gastroenterologic service are those with the roentgen service, the laboratory service, the surgical service, the dental service, and the dietetic service. Also important are relations with the representatives of the Sanitary Corps in regard to problems of epidemiology, parasitology and waste disposal, and with the Veterinary Corps in regard to inspection of foods of animal origin.

Research Possibilities—The military surgeon must be prepared to go anywhere and face any problem. If war comes, no man can tell what part of the world will constitute our theater of operations and no one can foretell the nature of the special problems that will undoubtedly arise. However, experience has already taught us that certain questions will probably press for an early answer. Among these, in my opinion, are the following pertaining to digestive diseases:

What are the best measures for the prevention, control, and treatment of the bacillary dysenteries? Although much work has already been done in this field, it still appears desirable to try some of the recommended procedures in a large-scale manner.

What is the best way for the Army to utilize the services of individuals who give a history of peptic ulcer? Many such persons, including doctors, are known to be competent in their respective fields. Should they be rejected categorically, should they be accepted conditionally and for limited duty, or should they be assigned to full duty if symptom-free? Data of prognostic importance which can help answer some of these questions must already be available in our own Army records. The experience of the British, previously referred to, should be useful in arriving at a decision. Similarly, what should

be done about individuals who have undergone gastroenterostomy or gastric resection?

How can modern knowledge of vitamins be utilized for the improvement of the Army ration? Some suggestive work has already been done in this direction.

How may the services of dietitians be utilized not only for the preparation of invalid diets but possibly for the improvement of feeding throughout the Army?

As has been stated elsewhere,⁶ the remarkable control of material and the ability to follow up cases that obtains in the military establishment are the envy of civilian practitioners of medicine. Such facilities readily lend themselves to special investigations and, with the improved organization now contemplated, one may reasonably look forward to the writing of another brilliant chapter in gastroenterology by the Medical Department of the United States Army.

Summary

1 Diseases of the digestive system have always played an important role in war as well as in peace, in the Army as well as in the civilian community.

2 The Medical Department of the United States Army has made noteworthy contributions to the field of gastroenterology.

3 The Medical Department of the United States Army has officially recognized the importance of the specialty of gastroenterology by creating sections of gastroenterology as integral parts of the medical service in the latest Table of Organization for the General Hospital.

4 The almost ideal control of clinical material that obtains in the United States Army lends itself admirably to the study and solution of practical problems in diseases of the digestive system.

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THE PRESENT STATUS OF VITAMINS IN NERVOUS HEALTH AND DISEASE

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SINCE the review three years ago¹ on the role of vitamins in nervous health and disease, no significant clinical advances relative to the effects of vitamins A, C, and D have been reported. The present publication is, therefore, limited to vitamin B₁ (thiamin), nicotinic acid, vitamin B₆ (pyridoxine), and vitamin E (alpha tocopherol)

Vitamin B₁ (Thiamin)

Neurasthenic Syndrome—Tension and irritable weakness states, frequently alluded to as neurasthenia and nervous exhaustion, are manifested in complaints of fatigability, weakness and exhaustibility, head pressures, poor sleep, irritability, feeling of tenseness, inappetence, various aches and pains, subjectively poor memory, and difficulty with concentration. Additional complaints referable to the bowels, heart, skin, and genitourinary apparatus are not uncommon. The etiology of this condition is not clear, but it is generally thought to be one of the more constitutionally determined of the minor psychiatric reaction types. Various etiologies have been suggested, but none satisfactorily explains the picture. Freud himself felt that neurasthenia was the result of current physical factors and suggested that it was the direct physical result of excessive masturbation.² As the various hormones were isolated, each in turn was held responsible. In this vitamin era similar indictments are being made.

With a diet poor in vitamin B₁, Jolliffe and his co-workers³ were able to produce a neurasthenic syndrome in 4 out of 5 experimental subjects. Their subjects (interns) complained of fatigue, lassitude, anorexia, precordial pain, burning of the feet, dyspnea on exertion, muscle cramps, and palpitation. The objective signs observed were skin hyperesthesia in a sock distribution, changes in the electrocardiogram, and calf muscle tenderness. Symptoms were observed as early as the fourth day and objective signs as early as the fifth day, although 1 subject developed no definite symptoms or objective signs in thirty days

with a diet estimated to contain only 62 per cent of his vitamin B₁ requirement.

The addition of thiamin alone to the experimental diet caused all symptoms to disappear within three days, and the objective signs within six days.

It is interesting that McLester⁴ had previously noted that many of the pellagra patients seen at the Hillman Hospital in Birmingham were considered neurasthenics before the objective signs of pellagra became manifest. It is now well recognized that few cases of pellagra depend exclusively on a deficiency of nicotinic acid and that there is an additional deficiency of thiamin in most of these cases. He suggested that many of the nervous and mental symptoms of pellagra depend primarily on a lack of sufficient thiamin in the dietary regimen.

In 1940 the carefully controlled study of Williams and his co-workers⁵ apparently established the fact that a syndrome resembling neurasthenia could be produced by a diet deficient in thiamin. Their otherwise excellent study suffers from the fact that they utilized as experimental subjects 5 formerly psychotic individuals (3 cases of dementia praecox, 1 of psychosis with polymyositis, and 1 of paranoid psychosis) and 1 psychoneurotic. Since somatic complaints of the type listed in neurasthenia are common in such patients, their results must be accepted with reservations. The problem is additionally complicated by the fact that similar syndromes have been reported as cured by nicotinic acid,⁶ Vitamin B₆,⁷ and vitamin E.⁸ Furthermore, it should be kept in mind that the clinical picture of this syndrome is extremely varied, that many such pictures occur in apparently well-nourished individuals, and that these symptoms frequently respond to psychotherapy.

Therefore, it should not be inferred that all neurasthenia is based on thiamin or other nutritional deficiency. It does, however, seem fairly certain that a syndrome possessing many of the characteristics of the ill-defined neurasthenic syndrome can be produced by nutritional deficiency. We emphasize the need to isolate this group from neurasthenic syndromes of other etiology.

Peripheral Neuropathy—The peripheral

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neuropathy occurring in the alcohol addict is now generally accepted to be the result of a nutritional deficiency and, more particularly, to be related to a deficiency of thiamin^{9,10}. This concept receives new support from the experimental pathologic work of Swank,¹¹ Street,¹² and their co-workers. Furthermore, Bueding and Wortis^{13,14} have been able to demonstrate an elevation of blood and spinal fluid pyruvate in all cases of alcoholism with peripheral neuropathy. Since Peters¹⁵ has already shown that thiamin is concerned in the catabolism of carbohydrate at the pyruvic acid stage, this finding constitutes additional evidence for the metabolic etiology of this type of peripheral neuropathy.

The brain is dependent for its normal functioning on a carbohydrate substrate,¹⁶ an adequate supply of oxygen,¹⁷ and various enzyme and coenzyme systems.¹⁸ Among the more important of these latter are thiamin, nicotinic acid, and riboflavin. Since all of these substances are of great importance in the catabolism of carbohydrate, it is conceivable that a deficiency in any one of them may interfere with proper brain functioning by interfering with the proper utilization of dextrose, the essential foodstuff of the brain. Therefore, it is pertinent that we have never seen a case of acute peripheral neuropathy that did not simultaneously show some evidence of cortical dysfunction. Whether or not the spinal cord, which also utilizes carbohydrate¹⁹ as its main foodstuff, is similarly involved cannot always be determined. Experimental evidence is plentiful to show that the dorsal columns of the spinal cord are frequently involved in chronic alcoholism^{11,12} (with its associated nutritional disturbances). Since the portions of the peripheral nerve involved in this type of neuropathy are those eventually carried in the dorsal columns (touch, vibration, position sense), it is often difficult to determine whether or not myelopathy is present. Wortis, Stein, and Jolliffe²⁰ have demonstrated that it is the large myelinated fibers carrying these sense modalities which suffer first and most severely in this type of peripheral neuropathy. Finally, patients with so-called irreversible peripheral neuropathy frequently show rather marked improvement if a diet rich in other nutritional factors is added to the thiamin.¹⁵

Particular mention must be made of a paper by Meklejohn²¹ who doubts that this type of polyneuropathy is due to a deficiency of thiamin. He points out that most of the earlier writers merely suggested that "nutri-

tional" polyneuropathy was caused by deficiency of the hypothetical antineuritic vitamin and that it should not be construed to mean that the authors believed "nutritional" polyneuropathy to be due to a deficiency of the pure chemical substance thiamin—a therapeutic agent unavailable to them at the time. His objections have been answered point for point by Jolliffe.²² But this does not imply that the subject is a closed matter.

Our knowledge of normal nerve metabolism is by no means complete, and as additional light is shed on these other factors it may be that certain changes now considered irreversible will prove to be completely reversible. It seems probable that, in certain cases at any rate, factors additional to thiamin are necessary to insure the complete regeneration of the diseased peripheral nerves accompanying nutritional deficiency. There still remains a definite group in which the changes have apparently advanced to the irreversible stage, and vitamin therapy is of little help.

Previous reports^{23,1} that the peripheral neuropathy accompanying pellagra was improved by thiamin or cocarboxylase have been confirmed.²⁴

Of a total of 422 ambulatory diabetic patients examined by Fein, Ralli, and Jolliffe,²⁵ 9 (2.1 per cent) fulfilled the criteria for the diagnosis of peripheral neuropathy resulting from vitamin B₁ deficiency. In these 9 subjects there were no abnormal findings other than peripheral neuropathy and no other clinically evident vitamin deficiencies. The estimated vitamin/calorie ratio in these cases did not, however, support the presence of a vitamin B₁ deficiency. The authors therefore suggested that the presence of arteriosclerosis (all their patients were elderly) may necessitate a higher concentration of thiamin in the tissues to insure that adequate amounts reach the nerves. Hausman²⁶ has recently observed 3 cases of peripheral neuropathy in insulin-treated diabetic patients. The resulting increase in carbohydrate utilization requires additional thiamin to insure its breakdown, and in susceptible individuals a deficiency may result. The importance of this mechanism in the cases reported by Fein and his co-workers is doubtful, since all of their cases occurred in elderly patients rather than in the young severe diabetic patients. As a result of their uniformly excellent therapeutic results, the authors conclude that "the symmetrical peripheral neuropathy beginning first in, and involving primarily, the lower extremities of patients having diabetes mellitus responds to

thiamin hydrochloride, and in our opinion is due to vitamin B₁ deficiency."

Two additional reports have appeared indicating that vitamin B₁ may be of use in multiple sclerosis²⁷ and chorea.²⁸ Our own observations fail to confirm these findings, and this point of view is further confirmed in an excellent paper by Robie.²⁹ Moore's suggestion that the nicotinic acid acted as a vasodilator and increased the blood supply in such cases is interesting, but his case reports are not convincing.

A well-controlled study led Rose³⁰ to conclude that thiamin was of no benefit in trigeminal neuralgia, a finding previously noted by us and, since, repeatedly confirmed.

The indiscriminate use of vitamins in cases of toxic and infectious neuritis continues. Results in such cases are difficult to evaluate, and conclusions cannot be drawn at this time.

Himwich and his co-workers,³¹ studying the brain metabolism in 7 patients with pellagra uncomplicated by other deficiency diseases noted that the brain oxygen A-V difference was 6.16 vols per cent as compared to a normal of 7.43 vols per cent. Since studies of brain blood flow were not done, this difference may not be statistically significant. In 8 individuals who had pellagra complicated by beriberi, however, a marked depression of the oxygen A-V difference was observed, with an average value of 4.69 vols per cent. This difference may be caused either by a blood flow increased 60 per cent above the normal or by a diminished cerebral metabolism. The latter possibility is regarded as more likely. The decreased cerebral metabolism in pellagra complicated by beriberi may be due to lack of one vitamin or to a polyavitaminosis. Nonetheless, these observations seem to offer an explanation for the cortical changes that accompany these nutritional disturbances and that we have observed as an invariable accompaniment of "nutritional" peripheral neuropathy.

Encephalopathia Alcoholica—With regard to the alcoholic psychoses, the modern trend is away from the older assumption of a direct toxic action of alcohol on the nervous system and is more in favor of a metabolic, or more specifically an avitaminotic, disturbance caused by the chronic ingestion of alcohol.³² This is contributed to by the following factors:³³ (1) The diet of alcoholic patients is deficient in vitamins. (2) The increase in total metabolism which occurs in alcoholic states, and particularly in delirium tremens, requires a larger supply of vitamins. As a

result, relative or absolute deficiencies may appear which might not otherwise be present. (3) Alcoholic patients have impaired gastrointestinal absorption because of associated gastritis and hepatitis. As a result they do not completely absorb even the small amounts of food they do eat. (4) The substitution of vitamin-free alcohol for vitamin-containing foods. (5) The increased vitamin requirement in consequence of the additional calories furnished by alcohol.

Delirium Tremens—The literature contains many articles indicating that thiamin chloride³⁴ and nicotinic acid³⁵ are either specific or have considerable value in the treatment of delirium tremens. On the other hand, Spies and his co-workers³⁶ reported negative results with nicotinic acid, and Rosenbaum³⁷ noted no essential difference whether vitamin B₁ or nicotinic acid is given or omitted in the routine therapy of these cases. As a matter of fact, they reported the experimental production of an attack of delirium tremens in a person suffering from chronic alcoholism who was given huge doses of thiamin chloride and nicotinic acid but was allowed to drink about 1 quart of whiskey per day. The delirium began thirteen days after this regimen was started.

Our published results^{38,39,40} indicate clearly that deficiency of thiamin and nicotinic acid is not specific in the causation of delirium tremens or administration of these vitamins in the treatment of this disease. We do, however, believe that delirium tremens is a factor of considerable importance in producing other nutritional disturbances of the nervous system (Wernicke's syndrome, nicotinic acid deficiency encephalopathy, peripheral neuropathy). As noted above, the marked increase in psychomotor activity which accompanies these delirious states so raises the metabolic requirements that clinically latent deficiency states may become manifest. We have, however, seen too many cases of delirium tremens recover entirely on saline and fluids to include nicotinic acid or thiamin in the specific treatment of this condition. We believe that thiamin and nicotinic acid, as well as the entire B complex, should be given to all patients with delirium in order to prevent the development of peripheral neuropathy, Wernicke's syndrome, and nicotinic acid deficiency encephalopathy and, perhaps, to prevent the development of as yet unknown types of encephalopathy related to nutritional disturbances. Delirium tremens may, of course, be related to some as yet un-

discovered or untried vitamin, but the evidence for thiamin and nicotinic acid is meager indeed.

Wernicke's Syndrome—In 1881 Karl Wernicke,⁴¹ on the basis of 3 cases studied carefully during life and at autopsy, delineated a clinical syndrome characterized by clouding of consciousness, varying ophthalmoplegias, and ataxia. The author did not indict alcohol as the causative agent but suggested that various toxins, including alcohol, might produce the clinicopathologic picture. Nonetheless, most subsequent cases were reported in inebriates, and alcohol gradually came to be accepted as the etiologic basis of this condition. As a matter of fact, Wernicke's original case did not occur in an alcoholic patient.

The patient was a 20-year-old seamstress who was admitted to the Charité following a suicidal attempt with sulfuric acid. She left the hospital after several days, but soon thereafter persistent and intractable vomiting set in, probably as a result of pyloric stenosis. The vomiting continued, and after one month she became stuporous and developed ophthalmoplegia and ataxia. In addition, there was moderate swelling of the optic disks with associated retinal hemorrhages. Her condition gradually became worse, and she died one week after the onset of this complication. Wernicke's other 2 cases, however, did occur in alcoholic patients who were admitted in delirium. The essential pathology was described by Wernicke and has been further elaborated by others. In general, the lesions are confined to the periventricular gray matter and are characterized by small foci of degeneration and varicose deformities of the blood vessels. There is subacute necrosis of the adjoining parenchyma, and small petechial hemorrhages are frequently, but not always, found throughout the lesions.

In addition to innumerable reported cases in inebriates, a review of the literature reveals some 40 cases described in nonalcoholic individuals. These latter cases are usually associated with gastrointestinal disorders or carcinomas accompanied by cachexia and vomiting. Many of these authors suggested a metabolic etiology, but opinion regarding the nutritional origin of the Wernicke syndrome was not crystallized until 1938, when Alexander and his co-workers⁴² were able to produce this syndrome in pigeons fed on a thiamin-deficient diet. They could not reproduce the disease in pigeons fed thiamin, even though they were deprived of all other vitamins or of any one other vitamin for a period of over six

months. In 1940 Alexander⁴² amplified his original report and showed conclusively that the lesions of Wernicke's polioencephalopathy occurring in man, and the disease he produced experimentally in pigeons deficient in vitamin B₁, were identical in their topographic distribution and in their morphologic and histologic characteristics.

We⁴⁴ have recently reported our clinical findings in 27 cases. Of the total, 3 occurred in nonalcoholic patients (2 depressed patients who refused to eat, and 1 case of pulmonary tuberculosis with associated vomiting). The other 24 occurred in chronic alcoholic individuals.

Our results may be summarized as follows:

1. The syndrome as originally described by Wernicke is probably a combination of several nutritional deficiencies affecting the nervous system and need not necessarily be complete in any case. It is, of course, possible that the exact syndrome that Alexander has reproduced experimentally in pigeons may occur in uncomplicated fashion in man, but beyond the fact that the patient would have ophthalmoplegia the other symptoms would be difficult to evaluate from a purely clinicopathologic point of view.

2. Our results indicate that (a) the ophthalmoplegia is a thiamin deficiency; (b) The clouding of consciousness may be related to anything that interferes with proper brain metabolism. Among the known offenders are lack of carbohydrate, lack of oxygen, lack of thiamin, nicotinic acid, and riboflavin, and probably lack of many other substances now under investigation; (c) The ataxia is difficult to evaluate, and its response to therapy has not as yet been worked out.

3. Other deficiency syndromes (pellagra, nicotinic acid deficiency encephalopathy, riboflavin deficiency) may, and do, superimpose themselves on the more usual Wernicke picture, and these require specific treatment.

4. The ophthalmoplegia is invariably preceded or accompanied by peripheral neuropathy. Since the latter results from a thiamin deficiency, this finding tends to confirm Alexander's thesis that they have a common etiology and that the polioencephalopathic changes represent a more complete deficiency in thiamin.

5. Delirium with its marked increase in psychomotor activity and, hence, in total metabolism usually precedes the development of this syndrome. In this type of case, the early administration of thiamin will prevent the development of ophthalmoplegia.

6 All cases that received adequate vitamin therapy recovered. In the recovered cases the development of a Korsakoff syndrome is the rule. The latter does not show a consistent response to thiamin therapy as has frequently been claimed.

Korsakoff's Syndrome—This psychosis consists in deficient power of retention for recent events, with a tendency to confabulate, and disorientation for time, place, and person. It may or may not be associated with peripheral neuropathy. Although most usually associated with chronic alcoholism, it is seen in conjunction with many other conditions (head injury, arteriosclerosis, subarachnoid bleeding, toxic and drug psychosis, etc.). Because of its frequent association with peripheral neuropathy, lack of thiamin has long been suspected, and several confirmatory reports have already appeared^{45,46}. These reports are probably the result of premature optimism. Our experience with the syndrome convinces us that not all cases of this type are the result of nutritional disturbances and that even where such disturbances do exist the role of thiamin is still to be determined. We have previously reported¹ that the confabulatory features of an acute delirium usually clear while the patient is receiving a diet deficient in vitamin B. In the more chronic cases, Bowman and his associates⁴⁷ have shown that thiamin seems to help in the recovery of these patients but is nowise specific. In these latter cases it may be argued that the changes have become irreversible. At any rate, the role of thiamin in the genesis and treatment of the Korsakoff syndrome still remains to be determined, and the evidence at hand is not at all convincing.

Regarding the manifestations of "encephalopathia alcoholica," we believe that each such patient should be labeled as to the clinical signs or syndromes presented, the response of these phenomena to specific therapeutic agents recorded, and, finally, the metabolic and pathologic changes correlated with the clinical picture found during life. It is our belief that studies of this type will undoubtedly lead to a much better understanding of the nutritional and metabolic disorders that interfere with the functional economy of the nervous system.

Nicotinic Acid

Pellagra was first described by a Spanish physician, Gaspar Casal⁴⁸ in 1735, but his observations were not published until 1762, three years after his death. The first published report appeared in the French literature

in 1755, but the author, formerly physician to the French ambassador at the Spanish court, freely acknowledges his debt to Casal. States of mania, depression, and confusion are described as accompanying the "mal de la rosa," and their severity and chronicity are stressed. "Without doubt these are produced by metastasis to the brain of the acrid and malign humours which produced this malady," He cites the example of a woman who, "during one of the melancholy deliriums so frequent in this disease, had a great desire to feed herself from cow's butter, for which she spent all her property, and she was cured."

Almost immediately following the discovery of the value of nicotinic acid in the treatment of certain manifestations of human pellagra, a number of articles⁴⁹⁻⁵² appeared concerning its usefulness in the treatment of the cerebral disorders seen in persons suffering with pellagra. Spies and his co-workers⁴⁹ state that pellagra patients are noted for the multiplicity of their complaints, among which are many that are usually classified as neurasthenic. The most common of these symptoms are fatigue, insomnia, anorexia, vertigo, burning sensations in various parts of the body, numbness, palpitation, nervousness, a feeling of unrest and anxiety, headache, forgetfulness, apprehension, and distractibility. The conduct of the person with pellagra is normal, but he feels incapable of physical or mental effort even though he may be ambulatory. They noted that the "neurotic" symptoms showed a prompt response to nicotinic acid therapy. Probably of greater significance than the relief of "neurotic" symptoms following nicotinic acid is their observation that these symptoms return when, without the patient's knowledge, nicotinic acid is withdrawn and another medicament of similar appearance is substituted for it.

The more obvious mental manifestations of pellagra are the various organic psychoses that complete the diagnostic triad of diarrhea, dermatitis, and dementia. Perhaps the most common is that in which loss of memory, disorientation, confusion, and confabulation are present. There are also types in which excitement, depression, mania, and delirium may occur. In our experience a paranoid condition is common in pellagra as in many other organic psychiatric pictures. Spies and his associates⁴⁹ report that all their psychotic patients recovered, but the psychosis in most of their cases was only of one to two weeks' duration. We can confirm these findings with our own experiences at Bellevue

Hospital We would, however, emphasize the fact that careful psychiatric examination reveals that these patients are frequently left with residual organic memory defects. In the psychoses of longer duration associated with pellagra, the response to nicotinic acid is certainly not spectacular, and specific therapy may not help at all. This does not mean that a lack of nicotinic acid was not important in the genesis of the mental picture. It does, however, point out the fact that these metabolic disturbances finally proceed to structural changes. When this latter stage is reached, the process may become irreversible. It must similarly be emphasized that many of the acute excitements and deliriums associated with pellagra frequently clear up without nicotinic acid therapy. Finally, pellagra patients are usually lacking in other factors contained in the well-balanced diet and probably necessary for normal brain metabolism. It is therefore suggested that adequate amounts of other vitamins be given to pellagra patients with encephalopathic manifestations in order to insure maximal therapeutic results.

Cleckley, Sydenstricker, and Geeslin⁵³ have reported on 19 stuporous patients who showed a remarkable response to nicotinic acid therapy. They concluded that hebetic grading into profound stupor may be the only sign of severe acute pellagra and that therapeutic trial of nicotinic acid is justifiable as the only method at present available for the diagnosis of such cases.

Jolliffe, Bowman, Rosenblum, and Fein⁵⁴ have reported 150 cases of an "encephalopathic syndrome," heretofore almost invariably fatal, which they believe is caused by nicotinic acid deficiency. This syndrome may occur as the only manifestation of a deficiency disease or it may occur in association with pellagra, polyneuritis due to vitamin B₁ deficiency, or the ophthalmoplegia associated with Wernicke's disease. The clinical picture of this syndrome is more or less well defined and is characterized by clouding of consciousness, cogwheel rigidities of the extremities, and uncontrollable sucking and grasping reflexes. To be excluded are the encephalopathic manifestations of groping, grasping, and sucking which may occur during the course of delirium tremens, infectious diseases with delirium, expanding intracranial lesions, advanced cerebral arteriosclerosis, and other diseases. Jolliffe also notes that some of the cases previously described by Spies,⁴⁹ Matthews,⁵⁰ Sydenstricker,⁵¹ and Cleckley,⁵² and

their co-workers may have belonged to this group.

Since not all of the cases showing this syndrome presented the usual skin and mouth lesions associated with pellagra, it was assumed that this syndrome represents an acute *complete* nicotinic acid deficiency, which develops so rapidly that the structural changes in the skin and mouth, characteristic of pellagra, do not have time to occur. Patients manifesting this syndrome and treated by hydration or hydration plus thiamin hydrochloride almost invariably died (95 per cent), patients treated by hydration plus concentrates rich in the vitamin B complex showed a marked drop in mortality (50 per cent), but when these patients were treated by hydration plus nicotinic acid, the mortality fell to 15 per cent.

Vitamin B₆

A specific syndrome in man attributable to a deficiency of vitamin B₆, or pyridoxine has as yet not been reported. Therapeutic effects have, however, been noted in several diseases of the nervous system, although its true position in the field of nerve tissue metabolism still remains to be determined.

Paralysis Agitans—Jolliffe⁵⁵ administered pyridoxine in doses of 50 to 100 mg intravenously either daily or every other day to 15 patients with paralysis agitans. Four showed subjective and definite objective improvement. Two additional patients were subjectively improved. Of the 11 patients who showed no objective improvement, 10 had suffered disability for more than three years, and 5 of these gave a history of encephalitis.

Spies⁵⁶ soon thereafter confirmed this observation and reported the dramatic improvement, particularly of the tremor, in patients having postencephalitic Parkinson's disease. In the arteriosclerotic group their results were not nearly so good.

Jolliffe⁵⁷ subsequently reported a group of 32 ambulatory patients with Parkinson's disease. In this latter group he noted that improvement seemed best in the postencephalitic cases. He concludes that the syndrome of paralysis agitans seems to include people who are helped by pyridoxine.

In a group of 12 chronic cases of paralysis agitans (including idiopathic, postencephalitic, and arteriosclerotic) treated with large doses of thiamin, nicotinic acid, riboflavin, and pyridoxine, Loughlin, Myersburg, and Wortis⁵⁸ noted no objective changes for the better. Several of the patients claimed to feel better subjectively, but this was also true for

several control patients who received injections of saline

The reported material is still too meager to draw any definite conclusions, but the evidence at hand suggests that (1) the best results are obtained in cases of short duration, (2) the number of cases helped is small (10 to 20 per cent), and (3) in the latter there is no evidence of any lack of pyridoxine, and the beneficial effects may be related to the general effect of pyridoxine on muscle metabolism

Pseudohypertrophic Muscular Dystrophy—Antopol and Schotland⁵⁹ reported improvement in 6 cases of pseudohypertrophic muscular dystrophy treated with pyridoxine. The treatment was instituted because of the previous finding⁶⁰ that foci of muscle atrophy developed in rats deficient in vitamin B₆. They believed that their results were due to enhanced muscle metabolism and did not imply that this form of muscular dystrophy was due to a lack of vitamin B₆. On the other hand, Ferrebee⁶¹ and his co-workers report entirely negative results in 21 cases of muscular dystrophy (14 of the pseudohypertrophic type), and Wortis⁶² has seen no essential change in 5 cases of pseudohypertrophic muscular dystrophy treated with adequate amounts of vitamin B₆. These contrasts in therapeutic results are difficult to explain and indicate that additional factors may play a part in the results obtained

Spies, Bean, and Ashe⁶³ described a syndrome in 24 people characterized by "extreme nervousness, insomnia, irritability, abdominal pain, weakness, and difficulty in walking," which disappeared dramatically following the intravenous administration of 50 mg of pyridoxine. In some of these cases they were able to confirm their clinical impression of a deficiency of vitamin B₆ by urinary saturation tests. Their clinical reports are rather meager, and the subjective nature of the complaints listed makes therapeutic evaluation even more difficult

Vilter, Aring, and Spies⁶⁴ noted the dramatic improvement of a patient with arsenical peripheral neuritis treated with pyridoxine, but maximal improvement was not obtained until pyridoxine was given together with vitamin E. When thiamin or physiologic saline were substituted for pyridoxine in the early stages of treatment, a relapse occurred

Vitamin E

The experimental work of Evans and Burr,⁶⁵ Goettsch and Pappenheimer,⁶⁶ and Einarson

and Ringsted⁶⁷ has shown that, in the experimental animal, deficiency of vitamin E results in paralysis. Goettsch and Pappenheimer⁶⁶ proved the dystrophic nature of the muscular change in the guinea pig and rat deficient in vitamin E. Einarson and Ringsted⁶⁷ demonstrated that the mature rat fed on a diet deficient in vitamin E developed lesions in the posterior columns and the anterior horns of the spinal cord. They pointed out that in the rat the pyramidal tract is located in the dorsal column and that the disease they were able to produce might, therefore, be compared to the amyotrophic lateral sclerosis syndrome seen in man.

Bicknell,⁶⁸ utilizing these experimental findings, suggested that in the younger individual it was the muscular system while in the older individual it was the nervous system which suffered most in vitamin E deficiency. He reported favorable results in 12 of 13 cases of muscular dystrophy and 2 of 4 cases of amyotrophic lateral sclerosis. His paper, which is in the nature of a preliminary report, is not too well documented, but the author's enthusiasm regarding the results obtained is not to be doubted. This was immediately followed by two exceedingly well-documented reports by Wechsler,^{69,70} who reported favorable results in a series of cases of amyotrophic lateral sclerosis treated with synthetic vitamin E. He pertinently suggests that the syndrome may have varying etiologies and that it is only in the group associated with a deficiency of vitamin E that favorable therapeutic results are to be expected. Of greater significance is his reported observation that on two occasions when the administration of the vitamin E was stopped the weakness returned, and when treatment was resumed recovery promptly resulted. As he points out, this is a crucial physiologic experiment and indicates that the recovery was the direct result of the treatment. Interestingly, the same author observed no particularly significant results in several cases of muscular dystrophy treated with vitamin E. On the other hand, Stone⁷¹ reported excellent results in 5 cases of muscular dystrophy treated with vitamin E and the vitamin B complex. He reports gain in muscle strength, the disappearance of fatigue and muscle pain on slight exertion, change in muscle texture, and replacement of dystrophic musculature by normally contracting muscle tissue. In 2 other cases of muscle atrophy of the spinal and neural type, the results were not quite so spectacular, but "an increase in the amount of regenerated muscle

tissue became apparent after the addition of vitamin E to the vitamin B complex the patient was receiving." Finally, Sheldon,⁷² Ferrebee,⁶¹ Denker,⁷³ Wortis,⁷⁴ and their co-workers have noted no objective improvement in a total of 27 cases of muscular dystrophy, 31 cases of amyotrophic lateral sclerosis, and 4 cases of progressive spinal atrophy treated with large doses of vitamin E, apparently for sufficient periods of time. These discrepancies in reported material from reliable sources require explanation.

Although but three years have elapsed since this subject was last reviewed, the growth of knowledge in this field has been sufficiently steady and solid to warrant this presentation. Some of the material originally presented has been confirmed, some has been discarded, and much remains to be tested. There is a particularly great need for more expert laboratory techniques. We, of course, do not suggest that clinical experimentation should stop until these aids are available, but we do believe that clinical experimentation will be much better directed and therapeutic results much easier to evaluate when these methods become available. We have been impressed with the lack of interest in the psychologic aspects of the various reported illnesses. It must be remembered that individuals attempt to maintain the experience of health even when threatened by a serious illness. The metabolic approach to these "degenerative" diseases has filled both patient and physician with a much-needed optimism, often clouding scientific vision. It would be well to continue our optimism but maintain our scientific critique.

As in vitamin deficiencies occurring elsewhere, those affecting the nervous system are usually the result of multiple, rather than single, deficiencies. Hence, a well-balanced diet should always supplement treatment with the specifically indicated vitamin. Furthermore, the possible synergistic action of vitamins has hardly been touched upon.

It must also be remembered that vitamins are not only accessory foodstuffs but drugs. Thus, nicotinic acid is not only a vitamin but also a vasodilator drug. Its vitamin and enzyme effect need bear no relationship to its use as a vasodilator drug. In the evaluation of the therapeutic efficiency of these substances it must therefore be kept clearly in mind that beneficial results may follow its vitamin (enzyme) effect, its drug effect, or its psychologic effect.

Finally, it must be remembered that ther-

apy, to be most efficacious, must be instituted early. Pathologic conditions are much easier to reverse when treatment is instituted before structural changes have occurred. This fact is worth the utmost consideration in evaluating therapeutic results and may account for many differences in reported observations.

It is our belief that further studies of this type will yield much information of value to students of nervous economy.

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Discussion

Dr Noble R. Chambers, *Syracuse, New York*—In these days the practicing physician, whether he is a general practitioner or a specialist, finds himself in a dilemma. Medical literature is full of new methods, new drugs, and particularly vitamins. Every mail brings advertising from the various drug firms. Then the detail man comes in. The radio programs are full of it. The drugstores have vitamin displays in their windows. The world, at least this century, has gone vitamin crazy.

It is, therefore, a real pleasure to hear a paper such as this, taking up each vitamin and its therapeutic uses and presenting in a scientific manner its application to the field of nervous health and disease.

Most of us have not had access to the material nor have we worked so exhaustively in the field as the authors of this paper. Therefore, I shall limit my discussion to a comment and a few questions.

I have not been greatly impressed with the use of thiamin and nicotinic acid in multiple sclerosis.

Though not directly applicable to nervous health and disease, the work of Dr O. D. Chapman, of Syracuse, has shown definitely that not only vitamin C is concerned in oral infections but also the B complex.

I have been impressed with the rather frequent occurrence of a syndrome resembling involution melancholia in both sexes but in individuals far too young for the involutional period, and the prompt relief afforded by adequate vitamin therapy. I have used the B complex in these cases. I have seen 2 or 3 cases of obstinate headache which were pronounced due to either sinus or allergy but were cleared up by vitamin B.

In alcoholism we must never lose sight of the importance of psychotherapy—indeed the effort to revamp the patient's morale must be added to any other therapy if a permanent cure is to be expected.

Questions—(1) What are the recommended dosages of thiamin, riboflavin, nicotinic acid, pyridoxine, and vitamin E? (2) When and why is the parenteral route preferable? (3) When and why is a multiple vitamin preparation preferable? (4) What are the toxic or undesirable effects of vitamins? (5) What about so-called winter depression—is not more than vitamin D concerned?

I have both enjoyed and profited by this excellent paper.

Dr F. C. Southworth, *Buffalo, New York*—This review of the present status of vitamins in neurology and psychiatry is most timely in view of the rapid accumulation of new data and of public confusion based mainly on the claims of advertisers. It appears that we are soon to be able to base our therapy on clear-cut clinical indications.

The idea that neurasthenia may be due to vitamin B deficiency will be welcomed by many psychiatrists who have hesitated to group all such cases with the psychoneuroses. Surely many a doctor has had such symptoms and wondered about his own adjustment.

I believe that most neurologists now accept the principle that polyneuritis in persons suffering from alcoholism is due to vitamin B deficiency and that the same factor is important in some of the brain lesions of alcoholism. That delirium tremens is not primarily due to this deficiency, as Dr Wortis has indicated, is also clear. In 1939 Bowman and Keiser pointed out that the salt metabolism is seriously disturbed in this condition and that administration of sodium chloride cuts short the period of recovery.

The somewhat conflicting reports on the effect of vitamin B₁₂ in paralysis agitans must, I believe, await further evidence before a conclusion can be drawn. Certainly in the symptoms of this disease, mental mechanisms play a most important part. A patient of ours, bedridden for a year with rigidity and tremor, walked on the first day of his treatment with Bulgarian belladonna.

In progressive muscular dystrophy, we have obtained some rather interesting results with vitamin B₁₂ therapy in 13 cases. The patients, pupils in a school for crippled children operated jointly by the Buffalo School Department and the Meyer Memorial Hospital, have been receiving intravenous or intramuscular injections of the synthetic vitamin twice a week for ten months. During this period they have been given quantitative tests for the strength of the principal muscle groups and have also been rated as to general nutrition, intelligence quotient, and social adjustment as indicated by their attitude and performance in classes. Although we have found no definite increase in muscular strength, there has been no decrease during the period of treatment. At the same time there has been marked improvement in general health and performance.

With respect to vitamin E, we have also had some encouraging results in amyotrophic lateral sclerosis. Three patients at the Meyer Memorial Hospital have been under treatment for periods of about a year. Two of these were advanced cases, almost totally disabled when treatment was started. Both have shown complete disappearance of fibrillar twitching, and muscular atrophy and weakness have not increased. In the third case, no gross atrophy was found on admission to the hospital, and the symptoms were of only six months' duration, but there was marked fibrillar twitching, increase in deep reflexes, and bilateral Babinski sign. This patient showed marked and rapid improvement on vitamin E and within a week was completely free from fibrillar twitching. Within two months he was able to work full time at strenuous employment in an industrial plant and has continued to work regularly ever since. His Babinski reactions have disappeared, and his only complaint is cramping of the leg muscles when fatigued.

This case serves to point Dr. Wortis' suggestion—that for good results treatment should be begun early and that the duration of the disease must be considered in the interpretation of therapeutic results.

THE NEW YORK ASSOCIATION FOR THE ADVANCEMENT OF PROFESSIONAL PHARMACY

The annual dinner meeting of the New York Association for the Advancement of Professional Pharmacy was held on Tuesday, June 10, at the Hotel George Washington, New York City.

The following officers were elected: Fred S. Frankfurter, president (brother of Supreme Court Justice Felix Frankfurter), Fred D. Lascoff, first vice-president, Cyrus Hakes, second vice-president, Irving Kantor, third vice-president, Albert Klingmann, treasurer, Fred Roediger, secretary, and Leonard J. Piccoli, executive secretary.

The following were elected to the Advisory Council: Dr. Iago Gladston of The New York Academy of Medicine, Dr. J. Lewis Blass of the First District Dental Society, Calvin Berger, Dean John L. Dandreaux, Anna Grosso, and Harry Read.

A resolution was passed to offer "every possible assistance" of the membership to Mayor Fiorello H. LaGuardia in his National Defense work.

A most interesting program on the Sex Hormones was presented by the following national authorities: Dr. Charles Fay Longfellow, of G. W. Carnrick, presiding, Dr. Erwin Schwenk, of Schering Corporation, "The Chemistry of the Sex Hormones", Dr. James A. Morrell, of E. R. Squibb and Sons, "The Production of the Female Sex Hormones", Dr. Ralph D. Shaner, of Roche-Organon, "Clinical Aspects of the Female Sex Hormones", Dr. William H. Stoner, of Schering Corporation, "Clinical Aspects of the Male Sex Hormones", and Dr. A. MacBrayer, of Ciba Pharmaceutical Products, "Some Non-Sexual Physiologies of Androgenic Substances".

NO APOLOGY NEEDED

A woman who had given a dinner party met her doctor on the street the following day.

"I am so sorry, doctor," she said, "that you were unable to come to my party last night. It would have done you good to be there."

"It has already done me good," he broke in tersely. "I've just prescribed for three of your guests."

—Wall Street Journal

BRAIN STILL USEFUL

William Harvey would never have discovered the circulation of the blood if all he had done was to punchcard the data of Galen. The machine has not been built which can substitute for the human reasoning used in performing a useful physiologic experiment. When it is built, then perhaps a man can allow his brain to atrophy.

—New England J. Med.

FEEDING THE GERMAN ARMY

MAX GERSON, M D , New York City

IN RECENT reports the great efficiency of the German Army has been ascribed not only to its excellent arms and the best of training but also to use of special methods of nutrition. It is important to know what parts of such reports are propaganda and what are the facts. It is the purpose of this paper to describe the nutrition of the German Army and the general directions in which it is further being developed. As a great deal of ground must of necessity be covered, one cannot go into many details or show many of the practical aspects involved.

The science of nutrition had progressed at a rapid pace when the new German government began with the upbuilding of its conscripted army. A host of special problems appeared and were promptly submitted to the leading physicians. Special institutions for their study were established, while schools and courses were set up to distribute the new knowledge. In order to avoid costly mass experiments, physicians acted with extreme caution in the introduction of new methods.

Physical conditions in the new German Army were far less rosy than propaganda would have liked them to appear. Reports in the medicomilitary and medical literature show that even of the most carefully selected men of the Luftwaffe 20 per cent suffered from C hypovitaminosis, army physicians found great difficulties in combating pyorrhea and other dental diseases by means of artificial vitamin C and yeast concentrates.¹ Also, among the powerfully built marines Kruttke² found many cases of vitamin C deficiency with gingivitis and parodontosis. In a more complete summary Rietschel³ explains that scurvy and stomatitis with parodontosis are different diseases, confirming the earlier studies of Salle, Tobler, and others.

In addition, two types of illness are especially in evidence: constipation and the nervous soldier-heart, approximately the same manifestations as in neurocirculatory asthenia.⁴

At the examinations for military services in Kiel in 1934, the number of perfect specimens at 12.6 per cent was frightfully low,⁴ considering that that district is among the healthiest of the country. As a result the requirements for fitness had to be somewhat reduced below the usual standards. Even then

only 55 per cent of those examined in Kiel were accepted for service in 1935.⁶

This human material, physically and nervously even below the average of former years, now had to be strengthened with all available means, increased efficiency was demanded, even new records of performance.

Theory and Practice

The nutrition of the German soldier is based on the requirements of a manual laborer with about 3,500 to 4,000 calories. According to Tyszkas, the American laborer requires 2,800 to 3,000 calories. Poty reports that the American soldier receives 3,500 calories in wartime.

The theoretically calculated average consumption for the recruit is 3,800 calories and that of the man in the field, 4,100. But "not the quantity of the food must be evaluated, but its quality and specific effect."^{5a} There is a clear recognition of the fact that calorie values are useful only for academic calculations. Motorized soldiers require fewer calories than infantry. On the other hand, unless he is well nourished the motorized soldier easily becomes nervous sometimes even to the point of psychosis.⁷ For this reason a good and abundant early breakfast is required, especially when traveling, consisting of strong coffee with much sugar and buttered sandwiches with sausages and eggs. Exhausted troops lacking appetite must undergo cold ablutions in the early morning to stimulate the desire to eat.

The "change to the vegetarian side"^{5b} has become a leading motive, thought to be important not only for increasing efficiency but also for the defense against diseases and their cure. Dattner⁹ noticed improvements and cure of neurotic and depressive conditions through a vegetarian diet. The relationship of animal to vegetable food is 18 to 24 per cent animal to 76 to 82 per cent vegetable, though this relationship fluctuates with different types of troops as well as with soldiers from different parts of the country.

The consumption of animal proteins always remains below the calculated maximum figures. "Food richer in protein is necessary in proportion as work performance and the speed of work are increased and more elasticity, activity, and readiness for battle are required."

(so-called "schnellkraftleistung"), on the other hand, "the long distance runner can rather get along with carbohydrates" (so-called "dauerbeanspruchungen") According to German calculations one-third of the total protein intake should be of animal origin, the theoretically calculated fluctuations being between 17 to 40 per cent. In reality, however, this proportion amounts to only 17 to 25 per cent for the various types of troops.

The total protein intake should not fall below 28 Gm. or 0.4 Gm. protein per kilogram of body weight. Experiments with higher protein values showed no improvement over the weight curves of these low-protein values.³⁰

Especially care is taken that milk and its staple products, such as all sorts of hard and soft cheeses including pot cheese, are used in increasing amounts.³¹ On the march, milk powder is preferred, for it keeps for eight months or even ten months if made of skimmed milk. The diet is considerably enriched by means of vegetable proteins, bread and potatoes constituting the main sources. The relationship of protein to carbohydrates is 1:10, that of fat to carbohydrates, 1:3.

According to the science of nutrition the daily requirement of fat is 50 to 70 Gm., with a minimum of 56 to 58 Gm. The daily average requirement for a soldier is calculated at 80 Gm. It is supplied as follows: 35 per cent from butter, 50 per cent from fat contained in meats, cheeses, cream, and sauces, and 15% from margarine and other cooking fats.³²

While the body can build fats synthetically, it has been shown by Stepp and others that it should not be long without the vitamins contained in milk and fats. The best fat is, of course, fresh butter with 0.4 to 20 vitamin D and 2 to 20 mg. carotene.

Carbohydrates with 627 Gm. (about 2,570 calories) daily average are the most important source of energy. The main sources are bread,⁹ potatoes,¹⁰ vegetables, fruits, legumes, and sugar. Bread alone supplies about 40 per cent of the carbohydrate calories.

Bread, therefore, remained an important nutritional problem for the German Army.¹⁰ After much thorough study it was decided to retain the old-fashioned "kommissbrot," made of coarse whole rye, containing all parts of the grain except the outer hull. Hindhede and, more recently, Bickel and Heupke have ascertained that the human digestive tract may be accustomed, like that of animals, to absorb up to 75 per cent of the protein contained in the bran. The recruit gets 750 Gm. of kommiss-

brot daily and, in addition—at least in the beginning—Swedish type of hard tack or graham bread. Kommissbrot contains all of the vitamins B₁ and E found in the grain, and no vitamins are artificially added to it. Scheunert found that flour containing 94 per cent of the grain still had all of the vitamin B₁ of the whole grain.¹⁰ In white bread the vitamins are no longer in evidence, and the addition of bran to the white flour does not give the equivalent of a real whole grain bread.

The daily carbohydrate metabolism consumes a certain amount of vitamin B₁. With hard muscular work and increased metabolism the daily requirement of B₁ exceeds the normal consumption rate of 1 to 2 mg. For increased efficiency the soldier must, therefore, have a greater supply, but even this is easily furnished by a liberal consumption of kommissbrot.

The daily consumption of potatoes for the recruit is 1,000 Gm. and for the older soldier 800 Gm.³¹ This corresponds to 900 and 720 calories, respectively. It is the soldier's most important source of vitamin C, though much of that vitamin is lost during winter storage. In fact, the Germans have now begun breeding a special sort of potato which permits only the smallest possible storage loss of vitamin C. Cooking and steaming, of course, also reduce the vitamin C content. Steaming them in their jackets accounts for the smallest mineral loss, cooking them peeled, the greatest (up to 50 per cent when boiled in salted water). There is a loss of up to 100 per cent when peeled potatoes are exposed to the oxygen of the air.

Fresh vegetables are given in great quantities. Here the main problem is to prevent "killing by cooking" and to make sure of the preservation of all mineral salts.^{11,12} For mass consumption it has been as yet impossible to cook vegetables in their own juices (without the addition of water or steam). Experiments with certain short cooking processes have produced no practical results. It is emphasized that such strongly water-soluble substances as mineral salts and some vitamins (B₁ and C) can hardly be protected during the cooking process and are dissolved in the cooking water. For this reason all of the cooking water of vegetables and potatoes must be used again for soups, sauces, etc., so that their contents of mineral salts will not be lost.¹³ One is well aware of the fact that it is difficult to restore a deficiency of mineral salts in the body cells, though this is certainly possible even though it requires time, since various

poisons must first be eliminated from the cells. In this connection the literature on trans-mineralization seems to have been of great interest.¹² As to canned and salted vegetables, the consensus is that "vegetables salted for the purpose of preserving can hardly any longer be considered carriers of vitamins."¹³

Summary and Conclusion

A. The emphasis is on potatoes prepared in many varieties, kommissbrot, cheese, milk, sour milk, rice, legumes, oat and barley products, flour and pastries, and vegetables and fruits of all sorts, the latter also preserved and cooked with sugar.

B. Meat is quantitatively, as well as with respect to its importance, in a secondary position.¹⁴ Such parts as heart, liver, kidneys, and lungs are much used. Since the army gets foods without restriction, this lessened consumption of meat is not due to a shortage of meat or to any other economic necessity, but it is solely an important result of the newer knowledge of the science of nutrition. In fact, it was a difficult task to get the soldiers used to this new regimen.

C. Aromatic vegetables, such as fresh onions, tomato pulp, and other domestic products, are abundantly used—also liberal quantities of dried vegetables and fruits and many fresh salads, raw and mixed with cooked vegetables.

D. The consumption of spices is kept as low as possible, little salt and pepper are used in order not to replace the original taste of foods by a general and uncertain flavor. Especially recommended is the consumption of yeast extracts, soybeans, and dried vegetables and vegetable powders.

The advantages of dried vegetables and of vegetable powders are so important that they deserve the following brief summary:

1 They are condensed in a relationship of 10:1—that is, 100 pounds of fresh vegetables are reduced to 10 pounds of dried.

2 They are ready to be cooked, absolutely clean, and without any waste.

3 They cook in one-half to two hours. Cabbage, spinach, and green beans are cooked in thirty to thirty-five minutes. Mixtures containing potatoes take longer.

4 All of the vital food elements are preserved. [(?) the author]

5 They are considerably cheaper than canned foods.

6 Their transportation costs are much lower.

7 There is a considerable saving of time

spent in preparation. For instance, in order to prepare fresh vegetables for 5,000 men, cleaning women have to begin work twenty-four hours in advance. This necessitates keeping the vegetables and potatoes thus cleaned in water until cooking time, with a consequent loss of vitamins and mineral salts.

8 There is a considerable saving in space. 1 cubic meter of dried and pressed vegetables is enough for serving 25,000 to 30,000 portions.¹⁵

9 Ease of transportation (this might be particularly valuable if America were to assume the burden of feeding certain parts of Europe).

10 No bacterial contaminations—especially important where troops have no access to fresh, clean foods.

11 Dried vegetables and vegetable powders taste good.

The German military authorities seem to realize that much improvement is still possible and to this end certain general principles have been laid down.¹⁶

a The consumption of meat and meat products must not be increased.¹⁷

b The consumption of fish should be increased,¹⁸ partly for reasons of national economy. At present the consumption of fish is about one-fifth of that of meat.¹⁹

c There should be a more abundant consumption of milk and milk products.

d The consumption of bread and potatoes should be increased.

e Likewise, there should be increased consumption of vegetables and fruits.

It follows that the German army "intends to fully exploit to the utmost such sources of food as are not yet fully used, and to change the nutrition as a whole still more to the vegetarian side."²⁰ In order to improve the preparation of foods so as to make them more to the liking of the soldiers, the waste contained in garbage cans is carefully scrutinized every day. The garbage can has thus become a valuable guide and great teacher in perfecting the daily menu.

The question of vitamins assumes a position of pre-eminent importance in relation to the problem of increasing efficiency. Since increased efficiency is predicated on increased metabolism and oxidation, the consequent consumption of increased quantities of vitamins must be insured.²¹ Rietschel's suggestion of preferring natural vitamins is accepted as far as possible. In enriching the diet with natural vitamins the relationship in which these vitamins occur in nature must be

chosen, for vitamin tables and the results of studies of vitamin metabolism are still too uncertain¹⁶ The addition of artificial vitamins to fresh or preserved foodstuffs is rejected Rejected likewise is that the field kitchen be supplied with an assortment of vitamin concentrates The Swiss army has experimented with an artificial vitamin preparation (Guigoz 3 consisting of vitamins C and B, mineral salts and iron, dried yeast 10 per cent, and glutathione) The results have been poor^{15b} Dalldorf's statement, "A dollar will buy more vitamins in the market than in the drugstore,"^{15a} may be considered the *Leitmotiv* in solving the vitamin problem for the German army

As everywhere in the living body, so in its relationship to vitamins harmony must exist, vitamins must be in their proper relationship to each other as well as to the hormones¹⁷ and mineral salts¹⁶ If this factor is overlooked, the water-soluble vitamins C and B may act against the fat-soluble A and E For instance, to restore balance, A hypervitaminosis may be compensated by an increase of the B and C reserves Finally, even A and B may act against each other The interpretation of clinical reports becomes increasingly difficult because lack of vitamin D in the diet may create similar phenomena as an excess of A In 1936 an American radio lecturer induced mothers to give their children more codliver oil But with vitamin D these children also received too great a dose of vitamin A, and thus experimental scurvy was produced despite the fact that these children had an abundant supply of orange juice The lesson was that excessive doses of vitamin A suppress the function of vitamin C

In German experiments with artificial vitamin C tablets (Redozon tablets) increased sport performances could be obtained by girl students without damage, but only temporarily Ragnar Berg was the first to emphasize that the effectiveness of vitamins depends on a surplus of alkali foods¹³ I found in my own studies that the replenishment of the mineral metabolism with the potassium group is a prerequisite for the vitamin replenishment and consequent increased efficiency of the cells¹² This has become a basic principle of nutrition which is now being practically carried out by way of increased consumption of vegetables and fruits, of whole grain bread, and in the utilization of the cooking waters of vegetables, potatoes, etc

The German authorities have only reluctantly developed special diets intended to ac-

complish special physical and technical performances The following brief summary emphasizes only certain characteristic features

1 Recruits receive, in general, an excess quantity of foods, even so, 70 per cent of them lose weight during the first half year because of the unaccustomed physical requirements

2 Members of the air corps get preference in everything

3 The troops in the field receive the largest quantities of everything, but infantry on the march gets almost as much

4 A special preparation of fruit and grape sugar, powdered meat, fat, milk protein, vitamins of vegetable origin, and fruit essence is given to overcome dryness of the throat and thirst

5 Most troops carry with them a lemon powder to improve the drinking water—5 Gm being sufficient for 1 pint of water

6 Motorized troops receive more refreshments, such as lemonade, and smaller quantities of food at more frequent intervals They also get more frequent rest periods¹¹

7 Soldiers in forts and below the surface get food especially rich in vitamin D, such as smoked fish, sea fish, butter, eggs, fat cheeses, milk, yeast extracts, etc

8 Soldiers in submarines and fortified positions receive foods that are especially durable and take little space, such as vegetable and potato powder, milk powder, and vitamin D supplements as under No 7

9 Parachutists get liver sausages, Swedish-type hardtack, and vitamin C tablets

10 Troops serving in the tropics, especially, get many fruit preserves frozen at low temperatures¹³ and milk powder

11 Troops serving in the arctic receive (following Friedjoff Nansen) a mixture of meat and vegetable powders, milk powders, and dried pressed fruits

The problem of increasing the performance of the soldiers is, however, a complex one, necessitating the solution of numerous special problems Included among these are the physiologic principles of fatigue and recuperation Meyerhoff-Hill's point of view that the lactic acid contents of the muscles correspond to the degree of fatigue and that general fatigue is due to increasing acid content in the blood has been generally retained However, during the last ten years certain fundamental studies have been reported by the Prague and Viennese schools which proved that during exertion the muscle cells lose potassium, and sodium takes its place Thus, the potassium contents of the muscle of well-rested rats

TABLE 1*

	Number of Animals	K mg %	Na	Ca	Cl	K/Na	Number of Animals	K, mg %	Na	Ca	Cl	K/Na	Duration of Running
Muscles	29	439	109	11	40	2 38	31	414	117	12	35	2 09	18 hr
Heart	29	411	125	11		1 94	31	394	142	10		1 64	18 hr
Liver	29	428	99	8	69	2 55	31	350	117	9	60	1 76	18 hr

* From Eppinger Arch. f exper Path u Th. Bd 133 509-524

averages 439 mg per hundred cubic centimeters, but only 414 mg per hundred cubic centimeters after twenty-four hours of running. Fatigue increases the sodium content from 109 to 117 mg per hundred cubic centimeters. The potassium loss due to fatigue is not limited to the muscles of skeleton and heart but affects the other organs as well, as shown in Table 1.

In other words, for the problems of fatigue and recuperation the mineral metabolism rather than the simple food metabolism with glycogen plays the decisive role. In fatigue, therefore, a light transmineralization occurs because of changes in the "directed permeability" of the cell membranes and walls of the capillaries. The result is PO_4 and Ca leave the cell and enter the blood, lymph, and the connective tissues, while Na, H_2O , and Cl go from the blood into the cells of muscles, nerves, liver, etc.

Roller¹⁹ describes the fatigued cell as follows "edema of the cell, cloudy swelling, increasing distance of the cell from the capillary, and protein excretion into the interstices." The entire regulatory mechanism of the cell suffers, the wall separating it from its liquid surroundings becomes permeable, and gradually the tension between the cell contents and its surroundings declines. It is as yet undecided in what stage the greater potassium loss of the cell occurs, but it is certain that there exists at once a relative impoverishment of potassium. There follow changes in the limiting surfaces between nucleus and protoplasm. If this pathologic event is accelerated, serous inflammations begin. The cell membrane is assisted in its function by an intermediary substance located between the cell and the nourishing capillary. This substance aids the parenchyma cell in permitting the exit of used-up substances and in keeping harmful substances out. The normal cell membrane retains a high-potassium content within the cell and prevents sodium and other substances from entering.

Needless to say that sodium and its derivatives are no longer given for fatigue and in inflammations, for the temporary relief is followed by increased weakening.

Another important problem was how soldiers could be helped to eliminate fatigue-creating substances. Investigations with the capillary microscope have shown that the capillary system performs a great part of this task and that only after restoring the function of the capillaries can fatigue-induced edema of the cell be overcome or inflammation be cured. The daily intake of all protoplasmic poisons has, therefore, been reduced to a minimum, including the consumption of nicotine, alcohol, tea, and hot spices, as well as excessive metabolic stimulation from protein overfeeding. It is well known that sport performances cannot be combined with the consumption of alcohol, much less record performances that burden all body organs to the utmost.

In conclusion, it may be briefly emphasized that the preference for a vegetarian nutrition by the German army is based on the extensive fatigue studies by Keller,²⁰ Eppinger,²¹ Kautz,²² Roller, and others. Keller has developed the classification of mineral salts into potassium and sodium groups within the animal and vegetable kingdom and found their electrical transformation in "biologic milieu." Of course, they are not the only powerful biologic forces, but their great significance for practical usefulness has been demonstrated, among others, by the increased efficiency of the soldiers nourished with the help of this knowledge.

One moral remains to be added: it is a terrible tragedy and paradox that the accomplishments of the new technique in the science of nutrition should now be used without limitation for the demolition of human life. Far better fields could be found for putting this progress to work than causing death and destruction.

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LABORATORY AIDS IN THE DIAGNOSIS OF GONOCOCCIC INFECTION

In the past the laboratory has aided in the diagnosis of gonococccic infection solely by the examination of stained films prepared from exudates. With the development of improved cultural methods, a new and more reliable diagnostic procedure has become available. Film examinations are dependable aids only in the diagnosis of acute infections in men. The cultural method should be used in the case of women, of patients with chronic infection, or as a test for cure, particularly after treatment with sulfonamide compounds. Film and cultural examinations together give the best results.

Sources of Material.—Material for films and cultures may be collected from the same source. In acute infections in the male, pus is obtained from the urethra. In chronic infections, urethral exudate is examined if present. Urine and prostatic secretion may also be cultured. In the female, pus is collected from the urethra and cervix. In vulvovaginitis, exudate is obtained from the vagina, preferably with a glass catheter. Additional sources of pus are Bartholin's glands, the fallopian tubes and other infected pelvic tissues removed at operation. In both sexes extragenital infections, such as conjunctivitis, proctitis, endocarditis, arthritis, and atypical meningitis, may occur. Appropriate material—exudate, urine, blood, joint fluid, cerebrospinal fluid, etc.—may be submitted for cultural examination. (Statistics indicate that 2 per cent of all cases of meningitis are due to the gonococcus.)

Collection of Specimens.—Pus is collected on a dry, sterile swab which is rotated over the surface of a slide to give a thin film. Material for cultural examination is collected on another swab which is put immediately into a tube containing approximately 1 ml. of nutrient broth.

Prostatic secretion is obtained by massaging the prostate while the patient constricts the urethra with the thumb and forefinger. It is collected in a tube containing 1 ml. of broth. First-voided urine, from 5 to 10 ml. in a sterile tube, constitutes a satisfactory specimen. A sterile swab is employed for obtaining specimens from the female urethra after it has been stripped. For cervical or vaginal specimens, a speculum should always be used, preferably without a lubricant. To obtain rectal discharge the anal orifice is cleansed and the swab inserted into the anal canal.

Specimens for cultural examination must be received by the laboratory as soon as possible, never more than six hours after collection. Hence, they should be delivered by messenger. Until cultured they should be kept at icebox or room temperature, not in an incubator. Cultural examination should be undertaken only in a properly equipped laboratory with trained personnel.

Interpretation of Laboratory Findings.—Failure to demonstrate gonococci by culture or to find typical intracellular gram-negative diplococci in films made after treatment or taken from patients with chronic infection, is insufficient evidence of cure. The presence of extracellular microorganisms, while inconclusive, is suggestive of the disease. In all such cases material for both morphologic and cultural examination should be sent again to the laboratory.

The complement fixation test in its present stage of development is not a reliable diagnostic procedure. In certain cases, however, it may be helpful when appraised in the light of clinical and other laboratory findings.—Issued by the New York State Association of Public Health Laboratories, Leaflet No. 17.

ORIGIN OF GREAT CLINICIANS

There is no better student than the son of a medical father if the boy's heart is in the work, but none is worse than he who, not caring for, or even disliking, the practice of medicine, is urged on by a medical parent to qualify in order to take his place. Better even than the student who, having family traditions, takes to medicine almost by instinct is the boy who, lacking any such associations, determines, whilst still a child, that he will be a doctor. For, in this last case, he may have more than an ideal to study and to id-

vance the science of medicine—he may have a real call to heal the sick and alleviate human suffering. It is from this class that the truly great clinician is derived. Often these students are what might be termed freaks in their families. They appear in every social stratum, and their early decision to become doctors seems often to be unrelated to any outside circumstances.—*By Wood Jones, in Doctors in Shirt Sleeves* edited by Sir Henry Bashford, London, Kegan Paul, Trench, Trubner & Co., Ltd., 1939.

Diagnosis

CLINICOPATHOLOGICAL CONFERENCES

DEPARTMENTS OF MEDICINE AND PATHOLOGY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, COLUMBIA UNIVERSITY

Date March 18, 1941

Presiding Dr Irving S Wright

History

DR ROBERT McGRATH This patient was a 45-year-old white man who was followed in the dispensary and hospital over a period of seven years. He had been rejected for military service in 1918 because of a heart murmur. No history of acute rheumatic fever or its cardiac equivalents could be elicited.

He was first seen in the dispensary in November, 1934. For three months prior to this he had complained of dyspnea on exertion, palpitation, and fatigue.

Examination at that time revealed the following significant findings: (1) moderate obesity, (2) blood pressure, 190/110 mm of mercury, (3) left ventricular enlargement, (4) a systolic thrill in the second right interspace, (5) a faint systolic murmur at the apex, (6) a rough systolic murmur at the aortic area which was transmitted upward and was also heard over the chest posteriorly, (7) a faint diastolic murmur at the aortic area transmitted along the left sternal border, (8) absent arterial pulsations in the legs, and (9) unsatisfactory blood pressure determinations in the legs. Urinalysis at that time was normal in all respects. The blood Wassermann reaction was negative for syphilis. The electrocardiogram (Fig 1A) showed a left axis deviation, depressed ST₁, elevated ST₂, diphasic T₁, high voltage QRS_{1,2,3}. The QRS conduction time was 0.11 second. An x-ray of the chest revealed cardiac enlargement with predominance of the left ventricle, the aortic arch was knuckled and prominent.

The patient was put on an anti-obesity regimen and was advised to restrict his activities to avoid dyspnea. He improved under this treatment.

Between 1934 and 1936 his condition remained essentially unchanged. The blood pressure averaged 170/100 mm of mercury. His occupation as a water inspector required considerable walking, which he was able to carry out despite slight shortness of breath. An electrocardiogram (Fig 1B) taken in 1935

showed changes from the tracing of 1934 consisting of further depression of ST₁ and changes in the form of T₂ and T₃.

In 1937 he developed episodes of severe pain in the lumbar region which radiated down both legs. This pain was initiated by effort and would disappear with rest. There were no definite changes in the murmurs. An electrocardiogram (Fig 1C) at this time showed alterations in the direction of normal. A chest x-ray in December, 1937, showed marked left ventricular enlargement with a prominent aortic knob. It was further noted that the descending aorta immediately below the knob appeared retracted. Some notching of the inferior margins of the ribs was reported.

During 1938 the patient was better symptomatically and did not complain of the pain in the back and legs. The blood pressure was 160/90 mm of mercury.

In 1939 he was working as usual but his dyspnea was more pronounced. Precordial pain was produced by effort and relieved by nitroglycerin. The pain in the legs did not recur. During this period the patient experienced two attacks of extreme dyspnea lasting several hours. The blood pressure had dropped to 138/100 mm of mercury.

He was hospitalized for a week in December, 1939, for mild congestive failure. The following blood pressure readings were recorded: arms, right 138/110 and left 142/112, thighs, right 124/110 and left 120/106.

Urinalysis showed a specific gravity of 1.030 and was negative for albumin, red blood cells, and casts. The blood count was normal.

In January, 1940, the patient found it necessary to change to a more sedentary occupation because of the increasing severity of his symptoms. He was digitalized and given mercurin suppositories but congestive failure gradually increased. An electrocardiogram (Fig 1D) taken in March, 1940, showed a rate of 105 per minute with left axis deviation. Depression of ST₁ and elevation of ST₂ were present. The patient was taking digitalis at this time and the changes noted were believed to represent left ventricular strain with digitalis effect.

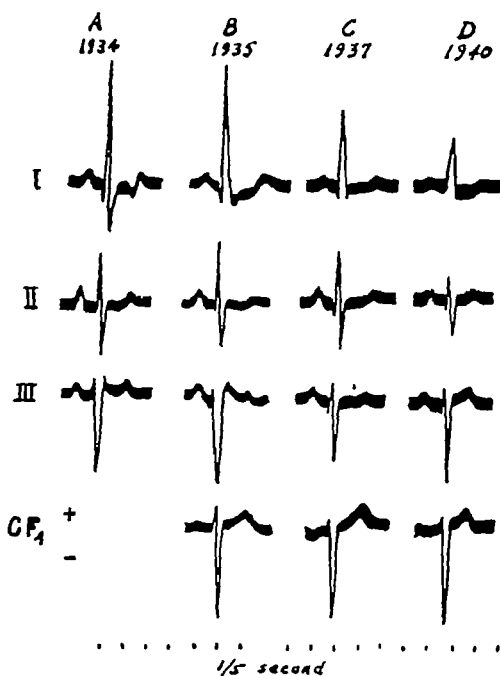


FIG 1

In October, 1940, the patient was acutely ill and in advanced congestive failure. The blood pressure had fallen to 92/76 mm of mercury. Immediate hospitalization was advised but the patient refused. Three days later he was admitted as an emergency case and died within an hour.

DR IRVING S. WRIGHT: Dr. Flexner will discuss this case from the point of view of differential diagnosis without the benefit of the pathologic findings, which will be presented at the end of the general discussion.

Discussion

DR JAMES FLEXNER: In considering this case we can take any one of the essential findings and develop the differential diagnosis. I should like to start with a discussion of the hypertension. In a general classification of diastolic hypertension, we can implicate four main systems: the nervous, the renal, the endocrine, and the vascular systems. On all occasions the urinalyses were normal. We may rule out, therefore, the renal system as a cause of the hypertension. There is nothing in the history or physical findings to involve the nervous system. In the endocrine system we must consider the possibility of a tumor of the adrenal gland or pituitary basophilism, but there is no evidence to substantiate this contention. Under the vascular

system we can consider the following causes of hypertension: (1) periarteritis nodosa, (2) lead poisoning, (3) thromboangitis obliterans involving the renal artery, and (4) coarctation of the aorta.

The absence of peripheral neuritis, eosinophilia, nephritis, fever, vague shifting symptoms, and periarterial nodules makes the diagnosis of periarteritis nodosa unlikely. There was no history of exposure to lead. No lead line of the gums, stippling of the red cells, abdominal cramps, or wrist drop was present. This, I believe, rules out the diagnosis of lead poisoning. If the hypertension was due to thromboangitis obliterans, more renal involvement would be expected. In addition, at least one of the extremities probably would have been involved.

The diagnosis of coarctation of the aorta will explain many of the findings in this case. The patient's murmurs were discovered at the age of 23. Murmurs discovered at this age or earlier are usually due to a congenital heart lesion or to rheumatic valvulitis. We have no history of rheumatic fever and so I should like to discuss the diagnosis of coarctation of the aorta.

There are two types of coarctation. One is the infantile type present at birth, frequently completely obstructing the aorta and, therefore, being incompatible with life. In the adult type there is a slowly progressive constriction at or near the insertion of the ductus arteriosus. A theory proposed for the explanation of the adult type of coarctation supposes that a portion of the retractile tissue of the ductus arteriosus extends into the aorta and, as atresia occurs in the ductus after birth, a stringlike constriction is exerted about the aorta. Absence or prominence of the aortic knob depends upon the site of this constriction. Since the narrowing takes place slowly, collateral circulation develops. If this collateral circulation develops below the arch of the aorta, anastomoses between the internal mammary artery and thoracic aorta via the intercostal arteries become prominent. There are also prominent anastomoses about the scapulas. These collateral vessels can often be seen and palpated. At times these large pulsating collaterals cause bony erosions such as occurred along the inferior rib margins in this case.

The hypertension of coarctation of the aorta may be explained by the mechanism of renal ischemia. In animal experiments Steele¹

¹ Steele J. M. Proc. Soc. Exper. Biol. & Med. 41: 86 (1939).

noted an elevation of the diastolic pressures in the upper and lower extremities when the aorta was partially clamped above the origin of the renal arteries. A systolic rise also occurred in the upper extremities but was absent in the lower extremities because of dissipation of the pressure in collateral vessels.

There are certain discrepancies in the blood pressure in this case. These consist of intermittent drops in the systolic pressures. If these changes are not due to the different standards of various observers, they may be explained by an improvement in the collateral circulation. This also could account for the disappearance of his intermittent claudication. The systolic murmur was probably due to the narrowing of the aorta and could be heard over the entire chest along the course of the dilated blood vessels. The other murmurs present may have been due to secondary valvular changes or myocardial dilatation. Frequently, there are associated congenital defects. The commonest of these are bicuspid aortic valves, patent foramen ovale, and patent interventricular septum. Abbott,² in reviewing 140 cases, found that the causes of death were as follows: congestive heart failure, 60, rupture of the aorta, 38, cerebral complications, 26, bacterial endocarditis, 14, and sudden heart rupture, 2.

Dr. Flexner's Diagnoses

Coarctation of the aorta, adult type

Congestive heart failure

DR. WRIGHT: Does anyone wish to suggest other diagnoses?

DR. MACK LIPKIN: From the description of the electrocardiogram and clinical history we may add to the diagnosis of coarctation of the aorta, coronary sclerosis with myocardial damage.

DR. WRIGHT: It seems to me that unexplained or essential hypertension should be considered in this list, at least from the point of view of differential diagnosis.

DR. J. SCOTT BUTTERWORTH: On his first admission the blood pressure was 190/110 and there was a continual fall until on the final admission it was 138/100. At the same time the blood pressure in the legs increased and was not far from normal. What would be the explanation of the decreasing tension in the upper extremities and the increasing tension in the lower extremities?

DR. FLENER: The 20 points difference in the systolic readings in the arms was probably emotional. When his systolic pressure de-

creased to 138 mm of mercury it was evidence of myocardial weakness. From Steele's¹ work a rise in diastolic pressure in either extremity would suggest further renal ischemia, while a rise in systolic pressure in the legs would indicate an improvement in collateral circulation.

DR. WRIGHT: In the cases of coarctation of the aorta which I have reviewed there were few that showed a pressure in the lower extremities as high as that obtained in this case. Taking the blood pressure in the legs is often difficult and may be subject to error.

Pathology

DR. MAURICE N. RICHTER: The principal changes of interest were all in the aorta and in the heart. I wish to point out the narrowing of the aorta which is below the attachment of the ductus arteriosus. There also is a marked stenosis of the aortic valve which has only two cusps. There was comparatively little arterial anastomosis demonstrated at the time of autopsy. The intercostal vessels were not very much dilated, but notching of the ribs was evident. There was also a moderate amount of stenosis of the coronary arteries and considerable thickening of the intima. There was fibrosis of the apex of the left ventricle and fluid in both pleural cavities.

In view of the fact that we have both a stenosis of the aorta and a stenosis of the aortic valve, I think we may have an explanation for the small amount of collateral circulation and the progressive decrease in the systolic pressure. The small aortic valve probably reduced the amount of blood in the ascending aorta, and the supply for collateral circulation was minimal. In coarctation of the aorta a bicuspid aortic valve, probably of congenital origin, is present in 20 per cent of the cases. We have not studied this particular aortic valve by the method of Lewis and Grant³ to determine whether it is congenital in origin because we wished to preserve the specimen. It might be interesting to do so, however, because few bicuspid valves have been studied in this fashion.

Pathologic Diagnoses

Coarctation of the aorta. Stenosis of the aortic valve.

Stenosis of the coronary arteries. Fibrosis of the myocardium.

Hyperplasia of the heart.

¹ Abbott, M. E. *Am. Heart J.* 3: 579 (1928).

² Lewis, T. and Grant, R. T. *Heart* 10: 21 (1923).

Chronic passive congestion of the viscera and ascites

DR JAN NYBOER In evaluating the electrocardiograms, the findings in 1934 and 1935 of high voltage, left axis deviation, and changes in the S-T segments and T waves are consistent with left ventricular enlargement due to hypertrophy of any etiology. The reduction in voltage in 1937 and further reduction in 1940 without other significant change is not easily explained. The drop in blood pressure due to concomitant aortic stenosis is probably not the cause. Impending or definite cardiac failure may be responsible for the changes in 1940.

DR WRIGHT I wish to point out that there has been progress in clinical medicine as well as laboratory medicine. An article by Sir Thomas Lewis¹ describes a situation

¹ Lewis T. Heart 16 210 (1933)

that existed in England during the last war. A young man was hospitalized for six months with unexplained hypertension. During his stay he was "examined more than once by Sir William Osler and Sir James Mackenzie, both of whom were much interested in his state. But the coarctation of his aorta remained undiagnosed." Today we feel that an intern should make the diagnosis of coarctation of the aorta promptly and without difficulty on the basis of a thorough physical examination including blood pressure studies of all extremities.

Editorial Committee

J SCOTT BUTTERWORTH, M D

MAURICE R CHASSIN, M D

HERMAN O MOSENTHAL, M D, *Chairman*

WAR AND INFECTIOUS DISEASE

The waging of war has always been attended by increases in the prevalence of disease, notes Clara E. Council, junior statistician of the United States Public Health Service in *Public Health Reports* (Washington). The rapid and extensive spread of infection is to be expected under the conditions brought about by the struggles between nations. The concentration and movement of large bodies of men from various parts of the world, the limitless hardships, with fatigue, general malnutrition, famine and exposure, and the lack of medical care, sanitation, and personal hygiene often experienced by civilians and soldiers alike provide the fuses for the explosion of widespread epidemics. Refugees and captured and returning prisoners are important instruments in the transmission of disease from enemy to enemy and to all civilian groups. While certain types of sickness have accompanied armies throughout the centuries, there have nevertheless been some notable changes in the prevalence and severity of wartime affections. It is only in comparatively recent wars that more men have been lost from military action than from disease. The ratio of the disease death rate to the battle death rate among United States troops was 7 to 1 in the Mexican War and 5 to 1 in the Spanish War. The Germans in the Franco-Prussian War of 1870 and the Japanese and Russians in the Russo-Japanese War of 1904 show the first records in which the mortality for the wounded was higher than for those stricken with infectious disease.

During and after the first World War, the common war diseases were highly prevalent in Eastern Europe, and there was a vicious pestilence of typhus fever throughout Russia, Poland, and Serbia. Typhus did not spread in western Europe in these war years, and the classic infections did not constitute the major sickness problems among fighting forces or civilians. The influenza pandemic overshadowed all

others, and the mortality from influenza and pneumonia recalled the ravages of the Black Death. Cerebrospinal meningitis reached new heights, and tuberculosis and venereal disease increases caused grave concern.

In the United States Army, influenza, venereal diseases, mumps, and measles were the most frequent causes of absence from duty, and influenza, tuberculosis, measles, and cerebrospinal meningitis were leading primary causes of death. The Army in the United States had generally higher rates for admission and days lost from duty for the infectious diseases than did forces abroad. The United States Navy also suffered from the communicable diseases, with a notably higher incidence in the training camps than on shipboard.

In the present war, influenza and cerebrospinal meningitis are again showing increased incidence, both for the Continent and the British Isles. Typhus fever and dysentery have been active in eastern Europe.

The evacuation of school children did not result in the expected increase in the communicable diseases of childhood in England, and for the most part the health of the people has not been seriously affected. The hazards of infection have, however, been intensified by the crowding of the bomb shelters. Not only influenza and cerebrospinal meningitis but also paratyphoid fever and dysentery showed increases in 1940 in comparison with 1939.

In the control of disease as in the fighting of battles the experience of the past can provide no rigid rules for present victory. Nevertheless, an appreciation of former problems may facilitate their solution in later experience. The changed character of the leading infectious diseases of war, with relegation to the background of the scourges of the past, may be considered a heartening reflection of the results of scientific research and control.

Abstracts of Proceedings

of the

NEW YORK PATHOLOGICAL SOCIETY

ANNIVERSARY MEETING, JANUARY 23, 1941

DR MAURICE N RICHTER, *President*

DR D MURRAY ANGEVINE, *Secretary*

Morphogenesis and Significance of So-Called Intercapillary Glomerulosclerosis— A Lesion of Diabetes Mellitus * Dr Arthur C Allen (*by invitation*)

Some four years ago Kimmelstiel and Wilson reported a series of cases in which they demonstrated the association of a characteristic clinical syndrome with a peculiar type of glomerular hyalinization which they called "intercapillary glomerulosclerosis." The clinical complex consisted typically of diabetes, hypertension, and the nephrotic syndrome. This association was subsequently confirmed by several observers. However, a number of key questions remain unanswered, such as (1) Does the lesion occur only in diabetic patients? (2) Is there a correlation between the severity of the clinical picture and the extent of the lesions? (3) What is the morphogenesis of the lesion and its role in the abnormal clinical physiology?

We studied the kidneys of 105 consecutive diabetic patients over the age of 40, 100 non-diabetic hypertensive patients over the age of 40 with a blood pressure of 160/90 or greater, 100 consecutive nondiabetic, nonhypertensive controls of all ages, and 34 unselected subacute and chronic glomerulonephritis patients. The glomerular lesion of Kimmelstiel and Wilson was found in 33 per cent of the persons suffering from diabetes, in only 1 of the hypertensive groups, and in none of the others. Two additional cases with the lesion were found in which the diagnosis of diabetes could not be made nor excluded because of the inadequate clinical workup due to their expiration shortly after admission. It is felt that this glomerular lesion may be unequivocally differentiated from the glomerular atrophy of ordinary nephrosclerosis by the following features: (1) the characteristic oval or disk-shaped hyaline mass surrounded by one or more concentric layers of displaced endothelial and epithelial cells and circumscribed by a rim of thin-walled capillaries, (2) its response to silver stains, manifesting either a characteristically laminated argyrophilia or

the mahogany brown of dense collagen which sharply differentiates it from the remainder of the uninvolved portions of the glomerulus, and (3) its relative resistance to tryptic digestion.

A study of serial sections revealed that the lesion appears to be derived from a thickening and fusion of the capillary walls rather than from the intercapillary tissue. Therefore, it is suggested that the lesion described by Kimmelstiel and Wilson be regarded as intramural or *focal capillary glomerulosclerosis* rather than as *intercapillary glomerulosclerosis*.

Afferent arteriosclerosis is a practically constant concomitant of the lesion. However, in addition, appreciable *efferent* arteriosclerosis is found in severe cases. This is stressed, first, because of its reported absence (*Am J Path* 6: 347, 1930) in the ordinary nephrosclerotic kidneys of hypertensive patients, second, because of the increasingly important role in glomerular dynamics to which this arteriole is being assigned, and, third, because the pressor substance in experimental hypertension is presumed to act on the efferent arteriole, which in these diabetic hypertensive patients is narrowed organically.

The presence of dilated, congested capillary loops showing evidence of stasis and their constant association with the diabetic glomerular lesion suggests that they may thereby be a factor in the albuminuria. Occasionally, some of these loops are extraordinarily dilated and contain small fibrin clots, protein precipitate, and laked blood.

Because of the admittedly unsatisfactory nature of the histologic criteria currently used for the diagnosis of diabetes and because of the clear-cut nature and high incidence of the lesion in these diabetic patients, it is suggested that this lesion be used as a

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morphologic criterion for the diagnosis of diabetes in persons over the age of 40

As a result of a collaborated study with Dr Sheppard Siegal (*Am J M Sc*, in print), we found that a more or less positive correlation existed between the severity of the syndrome and the extent of the lesions. It should be pointed out that the diabetes in most of these cases is characteristically mild, some requiring little or no insulin at all for the control of the diabetes. It may be mentioned, further, that no specific lesion was found in the pancreas in these cases.

Discussion

DR HANS SMETANA Dr Horn and I were interested in this condition, and we went over our material of 150 cases of diabetes. We were struck by the constant relationship between arteriolar changes and glomerulosclerosis and examined the material from this point of view. We could not find any case of glomerulosclerosis without renal arteriolar sclerosis. We also compared this material with about an equal number of cases of noncomplicated renal arteriosclerosis. We found similar globules in about the same percentage in noncomplicated, renal arteriosclerosis as in the cases complicated by diabetes, but the bodies were more numerous or more glomeruli were affected in the cases of arteriosclerosis complicated by diabetes than in the noncomplicated arteriosclerosis cases. We also could not find any constant relationship between the number of bodies and the amount of albuminuria, the age, grade of hypertension, or any other factors. We thought there might be some relationship between the glomerulosclerosis and treatment of diabetes with insulin and, therefore, we went over our cases that had occurred

before the institution of insulin therapy. We found few cases of glomerulosclerosis in this era but, since patients with diabetes usually did not live long before the treatment with insulin, we discarded this finding.

DR PAUL KLEMPERER I have examined some 305 consecutive cases without knowing anything about the clinical histories, and I could find 28 cases in which I could recognize this lesion without difficulty, there were only 2 cases in which I was somewhat in doubt. I feel these lesions are easily and definitely differentiable from those of ordinary nephrosclerosis. Of these 28 positive cases, 27 had diabetes.

DR ARTHUR C ALLEN I am unable to account for Dr Smetana's observation of this glomerular lesion with such remarkable frequency in the nondiabetic cases. Naturally, I should enjoy examining such a group of nondiabetic hypertensive patients for that purpose. I studied the relationship to the clinical syndrome in collaboration with Dr Sheppard Siegal, who unfortunately cannot be here tonight. He divided the cases clinically into three groups, without letting me know about the actual division. One group consisted of the diabetic persons without hypertension or any of the renal component, the second group consisted of persons with diabetes and hypertension and little of the renal element clinically, and the third group was the more or less fullblown syndrome. The actual data are to be published shortly in the *American Journal of the Medical Sciences*. Briefly, we found, in general, a fairly reasonable correlation between the severity of the clinical syndrome and the distribution of the lesion, which we graded as 1 plus, 2 plus, 3 plus, and 4 plus.

Morphologic Analysis of Tuberculous Lesions in Adults Dr Kornel Terplan, *Buffalo, New York (by invitation)*

Any attempt at the pathogenetic analysis of tuberculous lesions must be based on a thorough knowledge of the different types of the primary infection, including especially the primary complex. At postmortem examination of adults who died from different causes and of those with progressive fatal tuberculosis, it must be determined whether or not a direct or indirect connection between the lesions of the primary complex and all so-called postprimary lesions can be established. With the increasing material examined, each case looks more and more like an individual

problem. A few local lesions as incidental postmortem findings with more limited spread are especially favorable for successful pathogenetic studies. These are more complicated in cases of chronic pulmonary and visceral tuberculosis with extensive changes. No correlation of the variety of lesions to immune biologic theories is attempted in this study. The incidence of tuberculous lesions in children below 6 years of age is between 5 and 6 per cent, from the seventh to the eighteenth year, between 20 and 25 per cent. In adults from the eighteenth to the fortieth year the

percentage of positives varies from 70 to 90 per cent. Beyond the age of 45 entirely negative cases are exceptional. The tabulation of tuberculous lesions found in about 270 adults between 19 and 80 years of age in relation to their probable pathogenesis is presented, including cases of tuberculosis as the major causes of death and many cases in which tuberculous lesions were incidental.

Among 267 adults between 19 and 80 years of age, recent primary tuberculosis was found in 33, 2 typical tuberculous complexes (Ranke) of different ages (1 healed, the other recent), in 22, and a recent caseated complex in the presence of a healed primary focus without corresponding lesions in the lymph nodes was found in 7 cases. In addition, a primary focus without gross or microscopic evidence of tuberculosis in the regional lymph nodes was present in 20 cases. Recent focal tuberculous lesions, as incidental findings (mostly in one subapical area) in the presence of a healed stony complex, were found in 17 cases. In none of these were hematogenous lesions observed. In 13 cases with a recent caseated complex as an incidental finding, one or more additional caseated foci in subapical fields or in lower lobes were seen which had the same histologic structure as the primary focus. There was no evidence of hematogenous seeding in these cases. Chronic pulmonary tuberculosis with intrabronchial spread of the well-known picture of the so-called reinfection type was present in 18 cases. In all of these, remnants of an old first infection—namely, an ossified or stony complex—were demonstrated. In 8 cases the lymph node groups regional to the progressive post-primary pulmonary lesions showed marked tuberculous lesions similar to those seen in lymph nodes adjoining an active Ghon focus of first infection. The anatomic picture in the majority of the cases of this group pointed to exogenous reinfection or superinfection of the lungs. In 2 instances a healed stony complex of primary intestinal tuberculosis was found with an overwhelming recent tuberculous bronchopneumonia with extensive intrabronchial spread. This was obviously an effect of true exogenous reinfection.

Of the 33 cases with a relatively recent complex, in 15, progressive tuberculosis with hematogenous or intrabronchial spread had developed. In only 3 cases out of 28, progressive hematogenous or intrabronchial tuberculosis was caused by the recent complex of a secondary infection.

Many incidental findings in such cases

where death was not caused by tuberculosis are of considerable significance for a better understanding of the pathogenesis of tuberculous lesions. This applies especially to the apical and subapical foci. Our material contains many cases in which these mostly single focal lesions had formed during the active stage of the primary focus. As there was no anatomic evidence of hematogenous metastases to other organs, these single foci had developed either following superinfection from without or extension from the primary focus by intrabronchial spread. The histologic structure of these additional foci was identical with that of the primary focus.

In addition, effects of tuberculous infection in the subapical areas in chalky and calcified states are presented of unquestionably primary character with localized tuberculosis in regional lymph nodes which heretofore were considered as effects of a reinfection, especially with regard to their site and the localized intrabronchial spread. In 1 case such findings were bilateral.

Cases in which primary tuberculous infection remained restricted to the parenchyma of the lungs without evidence of spread to the lymph nodes formed about 10 per cent of our material. The incidence of true exogenous reinfections of the lung with the formation of a typical tuberculous complex of Ranke in the presence of an old, usually completely healed complex was also around 10 per cent of our material thus far examined.

Calcified structures that give x-ray shadows similar to older tuberculous lesions include phleboliths, parasites, and in many cases peculiar focal or diffuse bone formation of non-tuberculous origin (in the literature referred to as "osteoma"), calcification of small arteries in lymph nodes and occasionally, though rarely, nodular, focal calcification of bronchial cartilages, and, finally, calcification of the Botal's duct.

Several observations in children and adults point definitely to the possibility of superinfection regardless of whether the preceding infections were focal or presented by a typical complex. In a few of these instances the first lesion was not as yet healed. Individuals with healing lesions remain apparently exposed to new infections from without. A reinfection complex has been found, especially in such cases where the first complex had practically completely healed.

Discussion

DR EUGENE L. OPIE. I think that we are

particularly fortunate that a pupil of Ghon should have made this careful study of tuberculosis in this country, and I gather from what he has said that he has found the picture somewhat more complex than that which Ghon described. I assume this real or apparent complexity is in large degree dependent upon the fact that he has given more attention to older persons and, hence, has found lesions more varied than those that Ghon found in younger persons.

It is especially noteworthy that Dr Terplan has observed the increasing frequency of primary lesions with increasing age. The number of these lesions found in this country compared with their frequency in Prague is astonishingly small. I think Dr Terplan's figures are approximately 6 per cent below 6 years of age and about 19 per cent below 18. This represents a relatively small proportion when compared with the high incidence of tuberculin reactions in the larger cities of this country and of Europe. It is noteworthy that observations made in a rural district of Northern New York (Cattaraugus County) show that the percentage of persons who react to tuberculin at the age of 15 is approximately 16 per cent. Nevertheless, with the increasing age of adults the number of lesions increases greatly, so that many of these first infections are evidently acquired in late adult life.

Dr Terplan has emphasized the frequency of lesions of reinfection in adults characterized by the occurrence of "complexes" of different ages, one being calcified and the second caseous. Dr Terplan has described three such "complexes" of different ages. These observations introduce new difficulties in nomenclature. The usual form of reinfection in adults has been designated "adult type tuberculosis." When progressive it may be designated "phthisis." Dr Terplan has described a reinfection tuberculosis that repeats the characters of the first infection.

DR MAX PINNER. My main qualification for discussing Dr Terplan's paper is the fact that I am, as part of my editorial duties, thoroughly familiar with his work. It was indeed one of the great privileges of my editorial work to be a link between Dr Terplan and the publisher. On the basis of his published papers and from the demonstration to-night, I think it can be said without any question that this work represents the most complete and most thorough study that has ever been made on first and reinfection tuberculosis. It might be of some interest to ask what

the possible clinical and epidemiologic correlations are in regard to those facts that Dr Terplan has shown and that were previously not known. To mention just two of the important points—first of all, as Dr Opie has already emphasized, the classic picture of the primary complex, as described by Ghon and his co-workers, has become infinitely more complex. Ghon already has described multiple primaries on the assumption that they were simultaneous primaries. Dr Terplan's studies would indicate probably that some of these so-called multiple primaries are really complexes—to use his expression—which have occurred at different ages. It has been the classic teaching that the one lesion in tuberculosis which is entirely pathognomonic and invariably typical is the primary complex, with its typical parenchymal reaction and with the regular lymph node involvement. Now this picture undoubtedly has to be considerably revised. The fact that any later infection than the primary one would lead to a different type of histologic and possibly anatomic reaction was usually ascribed to a change in the reactivity of the organism caused by the primary infection. The demonstration that in the presence of a completely healed complex a new complex with the same histologic structure as a true primary infection occurs not infrequently probably means that the healing of the first complex is anatomically, bacteriologically, and immunologically complete, so that the body reverts to the same type of reactivity it had before the first infection. This seems to be well supported by relatively recent epidemiologic work in this country, particularly from some of the southern states. A number of reports have come out which show that in a rather astonishingly large percentage of children and young adults tested with tuberculin negative reactions to an adequate dose of tuberculin were found in the presence of roentgenologically demonstrable lesions that seem to be undoubtedly of a tuberculous nature. In addition, there have been an increasing number of reports to show that a person who has developed a tuberculin reaction may lose that tuberculin reaction, so that the previous statement, "once tuberculin-positive always tuberculin-positive," undoubtedly does not seem true any more, and we know that complete healing can occur.

Dr Terplan's studies show the anatomic substratum of this fact—that allergy may disappear and that the body may return to the same state that existed before the primary

infection Dr Esmond R Long, in studying this problem of waning allergy, has shown some quite convincing evidence that this occurs much more frequently in persons who do not live in contact with cases of open tuberculosis than in contact cases. In the open cases it is extremely rare that allergy disappears, in other words, continuous allergy is probably due to continuous reinfection.

I am sorry that Dr Amberson could not be here. I talked to him this morning about the paper and his idea about what he wanted to say in the discussion. He has permitted me to quote him regarding his studies on nurses in Bellevue Hospital. During the last ten years he has observed about 300 to 400 nurses who became tuberculin-positive after having been tuberculin-negative. A certain number of these cases developed clinically demonstrable pulmonary tuberculosis. Dr Amberson found—I think in accordance with some other workers—that, clinically and roentgenologically, no differential points could be found between the nurses who developed clinical disease immediately or shortly following a tuberculin-negative stage as compared to the nurses in whom tuberculosis occurred after they had been tuberculin-positive for some time. In other words, apparently neither clinical nor roentgenologic differentiation can be made between primary and reinfection tuberculosis. In no case has he been able to see lymph node enlargement in the primary infections. In no case, with the possible and doubtful exception of 1, was there any evidence of hematogenous seeding following the primary infection. It is interesting in this connection, however, that from other countries observations are reported which seem to tell a different story from Dr Amberson's studies. Hedvall and Maharos in Sweden have observed 151 cases that became positive. In 47 of these cases tuberculous lesions were demonstrable. Out of those 47 cases with clinical tuberculosis, 21 had a roentgenologically demonstrable primary complex. Out of a total of 19 cases of pulmonary tuberculosis in this group of first infections, 40 per cent were seriously progressive, which is an entirely different story from what is found in the Bellevue studies and in most of the other hospital studies in America. Most of these early cases in this country are not progressive if treatment is promptly begun.

Dr Long reported on the behavior of the primary infection in adults, and he found that some did and some did not show evidence of the primary complex—that is, a

parenchymal lesion plus lymph node involvement. It is interesting to know that all those in his series which showed lymph node enlargement were Negroes. It is probably important in all these apparent differences in the literature to consider the geography of the report and the type of epidemiologic development that exists under the particular conditions in which the studies are made. I do not know how homogeneous Dr Terplan's material is in regard to racial distribution. It is, of course, quite astonishing how heterogeneous it is in regard to the reaction to tuberculosis. Primary foci without lymph node enlargement, multiple primary foci, repeated primary foci, and so on. In this connection it is probably important to emphasize how more and more evidence is coming to the fore to show what an important role the constitutional character of the individual plays in the reaction to tuberculosis. In experimental studies Dr Lurie showed that he was able to develop rabbits with high and low susceptibility to tuberculosis by inbreeding families. He has gone a step further, which might give us one clue to constitutional differences. He was able to show in these two families of different susceptibility that the reaction to nonspecific material is different. The histiocytic transport of foreign material is of a different speed in one family as compared to the other family of rabbits. This is possibly one of the constitutional factors which may help to explain some of the differences in the individual reaction both to primary and postprimary infection.

DR GEORGE G. ORNSTEIN (*by invitation*)
I should like to ask Dr Terplan a question concerning the foci that he pointed out without any lymphogenous spread, such as foci of the primary phase of infection. We clinicians for a long time have been challenging our pathologists concerning whether or not they can differentiate between healed reinfection tuberculosis and the primary complex on the basis of histopathology. For a long time, differentiation of primary from reinfection tuberculosis has been based on studies of the longevity and age of the histopathology they have seen. Are they able to make such a differentiation?

From the clinical point of view, where we have had serial x-rays, we have been able to follow the primary complex from perhaps two or three weeks after infection for ten years thereafter, and the one thing we noted is that the method of healing varies with time. For example, the parenchymal component

of the primary tuberculous infection with deposition of calcium and bony formation is quite different from the healing in the corresponding lymph nodes, or vice versa, so that it seems to me if one is going to gage healing on the time element there will be a tremendous amount of confusion. For instance, if a child had died with a parenchymal component that calcified and a lymph node component that was caseous, we would look upon it as two different areas of age. I have asked our pathologist, Dr Auerbach, whether he can differentiate a reinfection tuberculosis with healing and calcification simulating that of the primary from the primary complex, and I have never been able to get any definite answer that there are certain characteristic healings in the primary complex.

A question I wish to ask is: Inasmuch as there is no lymphogenous association with this reinfection that Dr Terplan calls primary tuberculosis, is it not more logical to say the patient has had a focus of reinfection which has healed (and Dr Terplan is noting for the first time that reinfection can heal like the primary complex) rather than that we are dealing with repeated primary tuberculous infections? In my own experience I can recognize by serial x-rays these reinfection areas of tuberculosis which have healed, and when I show these healed areas to the pathologists they have difficulty in differentiating them from the primary phase of tuberculosis. My feeling, therefore, is that when we gather sufficient material from these so-called multiple primary complexes without lymphogenous involvement they will probably be nothing more than healed reinfection tuberculosis. I would like to hear Dr Terplan speak of that. I would also like to congratulate him on the tremendous amount of effort he has put in his valuable studies.

DR KORNEL TERPLAN: I wish to thank all the speakers for their interesting discussion and their kind comments. In answer to the question of Dr Ornstein: The histologic changes of focal lesions in each case show a great variety, as could be demonstrated even in children. There seems to be no question that the diagnostic criteria of Puhl as to the structure of the "reinfect" as compared with that of the primary focus cannot be accepted as conclusive. On this point I find myself in agreement with Dr Opie and Freeman-Dahl and a few others.

A second point I believe we cannot answer in a definite manner is the part played by the

lymph nodes regional to the primary focus or to the postprimary lesions. They might remain, especially in primary infections, much longer in a cheesy-chalky state than a corresponding Ghon focus that has already been found to be firmly calcified or obsolete in these cases. In the so-called reinfection type, especially in more progressive cases, we have not infrequently seen distinct caseation in the bronchopulmonary and tracheobronchial lymph nodes and, especially microscopically, tubercles are found in many of them. But single foci, especially in the older encapsulated or even calcified state, cannot be diagnosed histologically as to their true primary or postprimary nature or by x-ray, as both will become calcified or even ossified eventually. There are, of course, many cases in which a larger area appears to be simultaneously involved, especially in the apical or subapical fields in the so-called reinfection type. On the other hand, we have proved this same distribution in a few unquestionably primary infections. In these cases, then, x-ray diagnosis of a so-called reinfection type sometimes might be misleading. In some cases, as we have tried to point out, single apical lesions have been found in relatively early stages of the primary focus. There was not the slightest structural difference between all of these lesions, including the primary focus.

I, too, have been much impressed by the great number of individual differences in this study, and I would hesitate to rely on any structural differentiation of focal lesions between first and the so-called reinfections. Single or a few scattered apical lesions could not be proved as hematogenous metastases, since in many of these cases tubercles were absent in those organs that could have been reached only by the hematogenous route. I am afraid I have not answered the questions of Dr Ornstein in a satisfactory manner.

I have another question here: Is it possible to differentiate histologically the bronchogenic from the hematogenous lesion in the lung? Only in the early phases of hematogenous dissemination can the originally interstitial milary character be recognized, especially from the small size of the tubercles usually surrounded by well-aerated tissue. In dealing with multiple, large, older or healed foci that very well might be hematogenous in origin, as in 1 case I showed here, histologically there is no way of distinguishing these from older single foci brought about by intrabronchial spread.

Special Article

THE ROLE OF THE DOCTOR IN THE DEFENSE PROGRAM

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CONGRESS has placed upon the statute books of the country a new law. The larger implications of this law are only commencing to be apparent to our people. The Selective Service Law in its larger connotations makes a new mosaic pattern of our life in this defense system.

The Selective Service focuses attention on the paramount concept that stresses the knowledge or awareness of each citizen as to what part he shall play in the unfolding drama of this program. It is, in fact, the duty of each to search out the place where his own qualifications can best serve his country. The exact part each citizen shall play may be elected by himself or the part may be assigned to him by his neighbors or co-workers.

This nation has met and quietly faced grave dangers to its existence in the past. In a world in which a revolutionary trend is gathering its destructive agencies, the very awareness of what must be done and how it shall be accomplished is the high sign that our nation is gathering its forces for its defense and its preservation and also to stop the spread of the encircling conflagration that would destroy liberty as we know and cherish it.

We have no illusions as to what is necessary. We have guns, ships, tanks, and airplanes. We know we need many more of all these essential weapons. We are handicapped by inherent barriers that have been erected by ourselves and which are mental attitudes produced by a decade and a half of national life pledged to an idealistic complacency. We have been led to believe that decency in itself, like virtue, was its own reward and protection. We held to the belief that this national decency was a defense against international lawlessness and that peace-loving peoples could remain apart and unembroidered. We have anxiously watched peaceful Norsemen, Dutchmen, Finns, Czechs, and other fine, peace-loving peoples ruthlessly overrun and overcome. The psychotic somnolence that led the mighty armies of France to think *defensively only* and not plan for offense against environmental

aggression points a lesson whose moral has not been totally lost to us.

We are most fortunate. We have been given time to prepare, "to trim ship," to make ready for the approaching storm. Our broad acres are fruitful and produce our food requirements, our rich mines give us the metals from which our arms are forged. The busy hands of our workers fabricate the essential supplies needed not only by our civilian population but also by our armed forces. To accomplish the common purpose that the defense program sets, demands the united efforts of all elements in our population. We have just passed through a phase of obstructive barriers raised by strikes. I believe this barrier has about passed. During the recent weeks any intelligent observer could have sensed a trend in current domestic events which showed that American public opinion was being exasperated by this showing, and organized labor itself seems to have begun to adjust matters more in conformity with the desire of our people for a united, unhindered production effort. Our President has solved the issue by the Proclamation of Full Emergency. We can, I feel sure, look forward now to seeing ownership, management, and labor all doing their full share, each contributing a sacrifice toward the common objective—the preservation of the "American way of life."

For us, the doctors of the nation, there also must be sacrifice. This sacrifice must be coupled with service. The organized medical profession must play its part in this defense program.

In this state we have placed our entire resources behind the defense program. Each county society will do its allotted share in this task of concerted effort to serve the community. We have manned the medical section of the Selective Service Administration. Thousands of our colleagues are giving hours of painstaking work, selecting the vigorous among our youth to serve in the armed forces of our country. When it is comprehended that the doctor has no spare time, has no part of his day when he is "off duty," it must be realized what this type of patriotic contribu-

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President Medical Society of the State of New York.

tion entails—gladly given, gratis, to serve our government. To a large measure, too, we have staffed the medical sections of the army induction stations located in this state. Others among us are already in the field as officers to our armed forces. During the next year about 5,000 medical officers will be needed for the expanded army alone. The organized medical profession of this state will furnish its quota.

Our leaders of thought, the teachers on the staffs of our great institutions of learning and research, are foresighted enough to plan so that there shall be no interruption of the even flow of educated, highly qualified medical men into our community life to carry on the magnificent medical traditions in vogue here. What need have I to dwell upon details before a medical audience? Not capital, nor management, nor labor alone has problems that the clouds of hatred and oppression abroad have raised and intensified here. Nor do the repercussions from the strife abroad leave any sector of American life unaffected. Nor are we, as doctors, unaffected.

Insidiously creeping outward in an ever widening circle from its central pool of nazism is that hideous thing termed *racial hatred*, with its accompanying component of religious persecutions. This comes from the fair land that was once Germany—the breeding ground whence sprung poets and painters, musicians and philosophers, master craftsmen and medical solons. Nor are we unaffected, even though we are uninvaded. As doctors we all know and comprehend the nature and the manner of contagious and communicable diseases, but fewer of us apprehend the nature and the manner of “mental contagion.” You will comprehend what I mean by mental contagion when you recall that the publication of one type of murder is almost invariably followed by others in its imitation. A few years ago a young student, leaving a suicide note containing his belief in the futility of life, died by his own hand. He became the model that a few others followed, mentally infected by the heinous virus of his example. None of us these days can be too sure of our mental reactions to the virus of racial hatred, the incessantly recurring waves of which reach us from the poisonous cesspool of its origin. Petty annoyances excite reactions that, because of this impact, we do not handle with the rationalization and surety we are wont ordinarily to employ. Specific minor irritating factors become magnified beyond their actual worth, because this incessant impact

from abroad prevents sane, healthful mental attitudes on our own part. I am telling you all this because we as doctors have another and a different obstructive barrier to overcome. The handling of this question needs our healthiest thought. No spirit of racial hatred must intrude upon a process of clearly thinking the matter through to a logical conclusion.

There are in this state, in addition to our native sons who are doctors, over 2,500 medical men of foreign extraction, driven by persecution from their native lands. They have located in various parts of this state because of its liberal license provisions.

These men must be integrated in our medical defense program. Not to do so will work an undeserved handicap upon our native medical men. For our own native medical men to give up their private practices and hospital positions at the call of our government and leave these newly arrived physicians *at home* is something I should like to see avoided. I have reported upon this phase of our program to the national authorities and to the National Committee on Medical Preparedness of the American Medical Association. The national authorities imply that this is mostly a local problem since, by far and large, most of the physician-refugees have congregated in our state. They are not here because they desire to stay in the congested eastern section of the country. Many of them have told me of their entire willingness to go to any place in the United States where they could serve the community in a medical capacity. The provision of the licensing laws of most of the states is the handicap they cannot surmount, nor is a provision requiring full citizenship an adequate answer to the problem. To do this would create undreamed of conditions and trouble for organized medicine.

Under present conditions I would not abate one step in our open-handed hospitality. Still, I believe the situation calls for thought and action.

Since this is a state problem, let us handle it through our state agencies. Let us cease wishful thinking and adopt a positive position. Let us initiate remedial action.

A proper public opinion upon this question is the first requisite. There should be a general public comprehension that these men will take their places in our ranks in this defense program and they too will serve our government, which provides the political atmosphere that tolerates and encourages

the stranger to feel at home when he comes with clean hands among us. All of us, or our ancestors, were at one time "strangers" here. Our authorities should survey their capabilities, have in mind their mental equipment and qualifications, and fit them into the mosaic of the medical pattern of our defense forces. I do not advocate that these men, with their inherent nostalgic tendencies, ever be assigned to key positions in our defense mechanism. But some place where they may serve must be found for them. This should be done so that when this emergency shall have passed—as all mundane things do—they and the rest of us will again start upon our civilian medical practice with an equal chance and an equal opportunity—the American unhandicapped because his government called him to Federal service, and the foreigner not given an advantage because he is prevented from serving and forced to stay at home. If left at home, he meets his returning American colleague from the advantage point of security, while the American must begin all over again to pick up the threads and develop his security from scratch—the foreigner meanwhile already far along the track toward the commonly sought goal. I advocate putting the refugee-physician into the mechanism of our medical defense program not only because he should in this way repay the free gift of American hospitality but also because I do not want to see the American doctor handicapped—because while he serves, his foreign colleague profits, since the high privilege of service is denied to him.

The leadership of organized medicine in all these efforts has been carefully selected. Confident in this leadership, each individual member of the medical profession has his individual task. The medical professional man now realizes that it is not what he personally may want to do that counts but it is the carrying out of the tasks set for him by those he has elected to be his officers. Thus, I summarize the patriotic contribution that each of us will be called upon to make. In its essence this will necessitate sacrifices on our part.

There are four recent historic happenings that are so significant that I believe they signalized a definite epoch in American history. First, the re-election of a president for a third term, second, the passage of the National Guard Law, which took the National Guard beyond the borders of the state for field service for a year or more during a time of peace. As part of this particular piece

of legislation, medical reserve officers lost the privilege they heretofore have had of refusing to accept assignments to full military duty in peacetime. Third, the passage of the Selective Service Law during peacetime, making certain that our man power undergoes compulsory military training. Fourth, the appointment of a civilian coordinator to integrate all manner and means of our citizenry in an organized coordinated defense unit, something that we have never before had in this country in times of peace or war.

Surely, the enactment of this legislation should make us aware, if we needed any reminders, that we are passing through historic changes, even though no gun has been fired in combat by any American unit. All this I had written before the presidential proclamation of May 27. Now it is official. We are in a full emergency status.

Emanating from this legislation, changes are impending in which we, the doctors, are inherently interested. Selective Service in the New York City area alone has examined through the eleventh quota call of the Army (up to May 9, 1941) 87,085 registrants. Of these, 22,415 are classified for limited military service. The figures will probably be duplicated from the Albany headquarters in its section of the Selective Service medical examinations. The Federal government has already set up a National Commission on Rehabilitation under the chairmanship of a New Yorker, Dr. George Baehr. Plans are being discussed as to how this remedial therapy should be devised. There were efforts made by the Federal administration to enlist the aid of ancillary medical services—the Red Cross, the welfare agencies. The use of educational propaganda by the press and radio was enlisted and the good offices of the American Legion asked.

All these agencies, cooperating wholeheartedly to induce those classified in the 1-B category voluntarily to seek remedial therapy, were put into force in one area in New York City. Not much progress seems to have been made. Recently, the Long Range Planning Commission for a Health Program, under the leadership of Mr. Mauller, took cognizance of the problem, and this commission has appointed a subcommittee to study and report upon the problem. I have confidence in this commission. At some subsequent time and upon another occasion, I shall tell the profession how this commission is earnestly functioning. Here, I desire to pay a deserved compliment to Dr. Kaiser,

a member of that commission from the Monroe County Medical Society

But, to come back to the question I am now discussing—the rehabilitation of these many men. Sensing that voluntary submission to remedial therapy would not be a success because these men had adequate medical service at their doorstep during all their years of affliction when they were in civilian occupations, I felt that they would not seek medical aid voluntarily now, with the motive of seeking it to be put into full army service. Here again was demonstrated the truism that organized medicine has so often enunciated—namely, that for a certain percentage of the population, even though the tender of medical service were brought actually into their laps, these people would not avail themselves of it of their own free will, and the reformers' incessant cry for more and more medical services to the whole community would actually not better to any great degree the health record of our community. In March of this year, commenting upon this topic in one of my periodic bulletins (*S S Medical Bulletin* No 3, Headquarters, New York City Administration) I wrote

"Educational campaigns are not enough to make the obvious remedy to solve the problem practical. The concept that every citizen has an obligation to perform his military duty should be strengthened. A law which makes it compulsory for the citizen to perform a year's duty in the armed forces of the country should be broadened to prevent remedial physical defects from deterring men from carrying out this obligation of citizenship."

I suggested a *provisional induction* into the Army and the immediate transfer of these men to military hospitals for curative therapy. After a period of convalescence during which medically supervised body building and strengthening would be undertaken, there then should follow full induction into Army service in the usual way.

This remedial therapy should be so arranged that each registrant would be given the *right to elect* the choice of having this remedial therapy done by his own private physician in the usual manner of private practice. If he failed to elect to have it done by his own physician, then the Army surgeons would perform the required medical service. The majority of these men are not the patients of privately practicing physicians. Thus, no actual infringement of private practice would result. I should have the compulsion apply

only to the taking of steps to procure the necessary measures of therapy to effect a cure. The manner of its performance and by whom it would be done I should like to see made elective, thus maintaining for the registrant the principle of free choice of his physician even in this category of medical service.

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This brings up the question of adopted policy in our State Society. It is easy to be swept along with the momentarily popular swing of the tide. America is making a serious and strong effort to bring about a defense mechanism that will protect and preserve the American way of life. We should fight, as our forefathers fought, to keep all our liberties without any infringement or curtailment whatsoever.

Obviously, under the stress of wartime exigencies, certain patterns of our activities must perforce change so as to meet the realistic situation with which our people are confronted. But in planning and executing these manners of procedure to meet an instant need, let us so plan that we do not undermine the very democracy and the way of

life we are striving to preserve Let us build no Franksteins!

It is essential for us to remember that in meeting the requirements produced by the present emergency *the way be left wide open* so that when the emergency is passed we can easily return to our normal methods and manner of living This is essentially desirable for those of us who are doctors Our way of life has produced a health record among the people we serve second to none—anywhere in the world There may be debatable ground on the distribution of medical care, but the health record, as it is scanned over the years, is not only a source of pride in accomplishment but is a level of achievement which it should be ours to preserve and, if possible, make even better Therefore, we, as physicians, must take the yardstick of *quality of medical care*, measure each and every possible proposition advanced in the name of the National Defense Program, and see to it that, however much necessity exists because of instant situations, this shall not break down the employment of our "constant yardstick." It should be ours to so plan measures integrating community medical care in the Defense Program that they shall carry within themselves their discontinuance or dissolution when the present emergency is passed and has become history

The role of the physician in the present emergency can be summed up by saying that he is the teacher of habits conducive to good health in the young, he is the means of caring for the incidental, casual illnesses that happen

during the period of growth, he is the help and resource of the injured in industry, and he protects the community health through sanitation and hygiene

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Medical News

County News

Albany County

Dr Frederick A. D. Alexander, director of anesthesia and gas therapy at Albany Hospital, spoke on "Shock" at Albany College of Pharmacy on June 25 for the county society. Dr Arthur M. Dickinson led the discussion.

Twenty-nine graduates of Albany Medical College received their degree of Doctor of Medicine at the one hundred forty-sixth annual commencement of Union University on June 9 in Schenectady, and immediately fifteen of the new doctors were presented with commissions in the U S Army.

Dr Arthur J. Bedell received the Honorary Degree of Doctor of Science from Hobart College, Geneva, New York, at their commencement on May 26 and from the University of Colorado, Boulder, Colorado, on June 9.

Chautauqua County

If there are any physicians in the county who might be viewed as receptive candidates for coroner, they failed to announce themselves at the meeting of the county society, held on June 19 at Shorewood Country Club, says a dispatch to the *Buffalo Courier Express*. The subject was discussed at the meeting, but nothing came of it.

"Plenty of disagreeable work and little money go with the job," one physician remarked after the meeting.

It was pointed out that Dr Luke H. Boyd, of Bemus Point, elected coroner two years ago, evidently had enough, as he is not to be a candidate for re-election. Dr George E. Blood, of Fredonia, now in his twenty-first year as coroner, is quoted as saying nothing could induce him to take another term.

With two impending vacancies, there has been talk of naming physicians for the two Republican nominations, equivalent to election, but the big problem appears to be to induce them to run.

The meeting of the county society followed a 1 o'clock dinner, with forty-three in attendance and the president, Dr E. J. Kelly, Jr., of Jamestown, presiding. The main talk was given by Dr A. J. Beams, of Cleveland. He spoke on some new methods of diagnosis and treatment of intestinal diseases.

Chemung County

The county society heard two addresses at a dinner meeting at the Elmira Country Club on June 12.

Dr L. Wing, associate professor of obstetrics, Cornell Medical College, spoke on "Recent Developments in Obstetrics." Dr J. King, neurosurgeon of New York and Bellevue hospitals, spoke on "Head Injuries."

Essex County

The semi-annual meeting of the county society met at the Deer's Head at Elizabethtown on June 3. Dr Rudolph Ruedemann, dermatologist at the Albany Hospital, was the speaker.

Herkimer County

Dr V. M. Parkinson, superintendent of Pine Crest Sanatorium, told of recent improvements in the treatment of tuberculosis when he addressed the county society at the Sanatorium at Salisbury on June 17.

Dr Parkinson said that a renewal of use of pneumothorax with a new instrument that locates the seat of the disease has proved much more beneficial. Years ago when the pneumothorax was first used the desired results were not obtained, but this situation has been reversed.

The doctor showed x-rays of some patients who had several ribs removed to collapse their lungs and of other older methods of treatment.

The next meeting will be in October.

Montgomery County

Supreme Court Justice Christopher J. Heffernan gave a highly informative talk at the semi-annual meeting and dinner of the county society held at Canajoharie on June 11. His topic covered several fields of medical jurisprudence and stressed that the legal and medical professions have a duty to each other and to the public—the duty of bringing the best thought of both to bear on the problem of revising the system of penology to the end of creating an accepted definition of insanity and a clear understanding of the difference in the degrees of homicide.

The professions of law and medicine, while they have become divided in the course of time, were not far apart in the beginning, when the soothsayer who read the entrails of slaughtered animals made laws for men to follow, both for his personal good and the good of society. Now, the judge by his words may bring pain to those who are brought before him, while it is the physician who comes to the homes where disease and death have entered and by his skill and courage brings hope out of despair and life from the destroyer.

We have a wrong penal system and must look to the doctors for help. There will probably be no immediate change, but 100 years from now men will look back upon the present system with the same revulsion as we now look upon the penal system of 100 years ago, when 160 crimes were punishable by the death penalty. Punishment is necessary not only to deter the criminal who has erred but also to deter the one who has never done wrong but who, without the fear of punishment, might be inclined to do so.

The system of punishment is irrational in that first offenders are confined with morons and recidivists. Students of mind and body realize that there is much waste and futility in it all, and we look to the medical profession to revitalize the tissues of the law. The life history of a man condemned to the chair marks a course from reform schools and state prisons to, finally, the death penalty. Such a man seems to have been doomed from the beginning.

Definitions of homicide and first and second degrees of murder are none too clear. First-

degree murder is defined as a deliberate design and intent by one person to bring death to another, while second-degree murder is defined as killing with intent but no deliberation. The difficulties of the law arise in determining what is meant by deliberation and premeditation, since the human mind and brain are so made that it is not necessary to show the law that weeks, days, or even minutes have elapsed during which the deed was planned or premeditated. It is all too vague. There can be no intent unless there has been a choice, and there is no choice unless there has been an emotion so great as to sweep the mind from its moorings. Too many times jurors are confused by cunning words that only cloud the difference between first- and second-degree murder, and scores have gone to their death because of this confusion.

Mental irresponsibility or insanity was not accepted as a defense at one time. There came into the vocabulary of law what was termed as the "wild beast defense"—a state of mind during which a man lost all sense of right and wrong and for a moment became like a beast. Then came the issues of whether a criminal knew the specific act he committed was wrong, whether he knew right from wrong as an abstract proposition, or whether the conditions which caused the act were such as to justify it. There is a twilight zone between sanity and insanity. It is all vague. The medical profession must combine with the legal to frame a definition.

At the close of the meeting, upon motion of Dr. E. C. La Porte which was carried unanimously, Dr. Henry C. Young, Hagaman, New York, who has been a faithful member of the county society for fifty-three years, was elected to honorary membership.—*Reported by Roger Conant, M. D., Secretary*

Nassau County

The following committee chairmen have been appointed for 1941-1942: entertainment, Dr. Walter C. Freese, Baldwin; legislation, Dr. Eugene H. Coon, Hempstead; maternal welfare, Dr. G. Borden Granger, Rockville Centre; medical economics, Dr. Stuart T. Porter, Floral Park; professional advisory, Dr. Everett N. Whitcomb, Port Washington; public health, Dr. John M. Galbraith, Glen Cove; public relations, Dr. Wilfred M. Post, Williston Park; and scientific sessions and postgraduate education, Dr. Dwight T. Bonham, Hempstead.

New York County

"In its brief period of existence the Committee on Medical Preparedness of the Medical Society of the County of New York has rendered significant service to the defense program," says the *New York Medical Week*. "Organized less than a year ago, it has compiled an enormous amount of essential information about the physicians and hospitals of this district. It has kept seventy local Draft Boards and eight Medical Advisory Boards supplied with competent professional personnel and has procured qualified specialists to serve on Army Induction Boards in the metropolitan area.

"In a sense every loyal physician is a member of the Committee on Medical Preparedness, for, in the latter's own words, 'the cooperation of the profession is the fundamental basis for the

effective operation of the national plan.' So far this cooperation has been forthcoming in good measure—most of the 7,000 questionnaires sent out by the Committee have been returned completed. Physicians who have not yet filled out their blanks are urged to do so without further delay.

"The Committee has made good use of the information received so far. Besides supplying necessary medical assistance to the Selective Service System, it has listed all physicians according to age groups and availability for various types of duty. It has classified some 800 or more surgeons according to experience and ability and is now about to make similar classifications of otolaryngologists, industrial physicians, and other specialists. In spite of the enormous amount of detail involved in these tasks, it has found time to study general aspects of the Draft affecting the medical profession and to keep the latter informed of policies and practices in which its interests are involved.

"This is an unusual record of accomplishment, challenging the highest standards of patriotic action. The Medical Society of the County of New York is deservedly proud of the Committee on Medical Preparedness and its contribution to the national defense."

Dr. Alfred M. Hellman, president of the county society, has sent the following letter to Mayor LaGuardia, director of the Office of Civilian Defense:

"Honored Sir

"At a Special Meeting of the Comitua Minora of the Medical Society of the County of New York, held on May 22, 1941, it was voted to offer to you, as United States Director of Civilian Defense, the full cooperation of the Medical Society of the County of New York in any way you may care to use the facilities and membership of our organization in the furtherance of your plans for National Defense.

"We would all like to be of service to you and our country in this emergency, in any way desired."

The New York Roentgen Society has elected the following physicians as officers for 1941-1942: president, Dr. Douglas Quick, vice-president, Dr. Eric J. Ryan, secretary, Dr. Paul C. Swenson, treasurer, Dr. Maurice Pomeranz, member of the executive committee, Dr. Henry K. Taylor, retiring president.

Dr. C. Ward Crampton has received the Award of the Silver Buffalo for "distinguished service to boyhood" by the Boy Scouts of America. The award is made on the basis of noteworthy service of a national or international character, outside of line of regular duty, to boyhood, either directly to or independent of the Boy Scouts of America.

Dr. Crampton was for twelve years director of physical education and hygiene, Department of Education in the Schools of New York City. He was founder and president of the Anstogenic Association. For over seven years he has written a page on "Physical Fitness" in *Boys' Life* magazine. Dr. Crampton organized and was first chairman of the Greater New York Boy Scout Committee, which became the Greater New York Boy Scout Foundation.

Onondaga County

Dr J G Fred Hiss, professor of clinical medicine at the College of Medicine, Syracuse University, has been placed in charge of the National Youth Administration Medical Program in up-state New York, according to announcement in Albany.

He is chairman of a subcommittee of the Council Committee on Public Health and Medical Education of the State Society, especially assigned to working with youth groups. His work to date on this committee has been mostly with 4-H groups.

Ontario County

Dr C Harvey Jewett entertained the Canandaigua Medical Society at his cottage on the West Lake Shore on June 12. Dr Charles J Bobeck read a paper on "Cardiac Arrhythmias."

Orange County

Dr John W McKeever was appointed chairman of a committee to draw up a new constitution and bylaws for Newburgh Bay Medical Society at its annual dinner and organization meeting in the Palatine Hotel at Newburgh on June 10.

A sound picture in natural color on hunting and fishing in the Catskills and Hudson County, through the courtesy of M D Cadman, pharmacist and sportsman, featured the meeting.

Putnam County

At the annual meeting of the county society on June 4, at the Gipsy Trail Club, Dr John T Jenkin, of Lake Mahopac, was elected president for the next year. Dr Alexander Vanderburgh, of Brewster, was chosen vice-president and treasurer, and Dr George H Steacy, of Lake Mahopac, became secretary. Censors are Drs Robert S Cleaver, of Brewster, Ralph M Hall, of Cold Spring, and William P Kelly, of Carmel. Dr Henry W Miller, of Brewster, was re-elected state society delegate.

The meeting was the occasion of a joint scientific session and dinner with the Putnam County Nurses' Association. Thirty-five members of the association were present and were welcomed by Dr Cleaver, retiring president. Responses were made by Mrs Mildred Knapp, president, and Miss Hetta Alexander, secretary, of the Nurses' Association, and by Mrs Marie Hart, district state supervising nurse.

Speakers at the scientific session were Dr Camille Kereszturi, assistant pediatrician at Vanderbilt Clinic, whose subject was "Progress in Pediatrics," and Dr Eugene Bard, of Columbia, who spoke on "Progress in Dentistry." Among those taking part in the discussion was Dr Langmuir of the Westchester County Department of Health.

Dr Donald W Ruchie, of Croton Falls, appealed for volunteers as blood donors in connection with the National Defense Program.

An immediate and specific result of this first gathering of county doctors and nurses is the establishment at the Mahopac Emergency Hospital of a nurses' registry, where a list of graduate and practical nurses, available for duty and on public call will be kept for the immediate convenience of physicians and the public.

Richmond County

The annual dinner of the county society was held on Wednesday, May 7, at the Meurot Club, St George, Staten Island. A large number of members attended the affair. The guest of honor was Dr Nathan B Van Etten, president of the American Medical Association. Dr J J Goller and Dr O M Race were in charge of the arrangements for this dinner.

Saratoga County

The county society held its June meeting at the research building at the Saratoga Spa on June 19.

Dr Robert Linton, Boston, spoke on "The Diagnosis and Treatment of Peripheral Vascular Disease." Dr Linton is instructor in surgery of Harvard Medical School and surgeon on the staff of the Massachusetts General Hospital.

Dr Frederick G Eaton was elected president of the Saratoga Springs Medical Society on June 12. Dr Eaton succeeds Dr H Dunham Hunt.

The election followed a dinner at Riley's Lakehouse. Dr Lyle Sutton, Albany, discussed endocrinology.

Other officers elected to serve with Dr Eaton were Dr Robert E Rockwell, vice-president, and Dr John A. Esposito, secretary and treasurer.

Steuben County

Members of the county society dined at the Veterans Administration Facility at Bath on June 12 and held their meeting at the Facility following the dinner. Dr Joseph Boch of the Facility Hospital medical staff discussed the treatment of asthma, and a sound and color film on otoscopy in inflammations was shown.

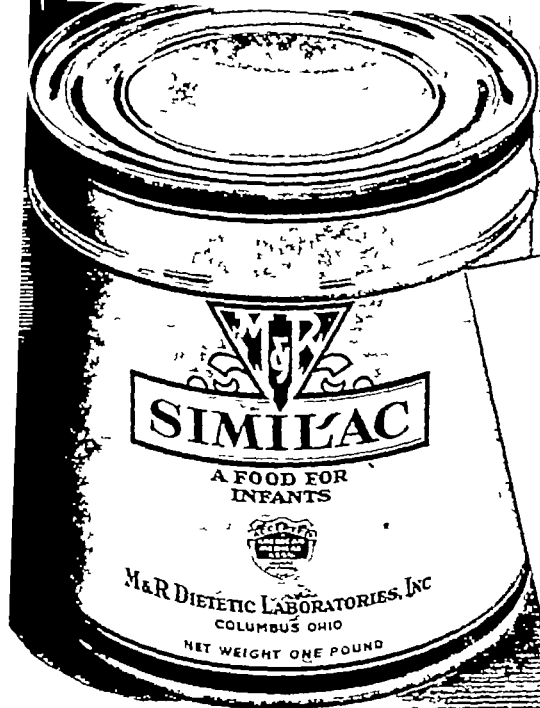
Westchester County

About 130 members of the county society, their wives, and guests attended a dinner dance on June 14 at Westchester Country Club. The event replaced the society's annual dinner. Dr Reginald A. Higgins, of Port Chester, president of the society, was toastmaster.

Dr Samuel J Kopetzky, president of the State Society, urged physicians to be on the alert for new proposals that may be put forward now in the defense program. He warned that the American way of life may be endangered by changes sought in the guise of "defense" in that way of life.

Another speaker was Dr Benjamin P Watson, director of obstetrics at Sloane Hospital for Women, New York City. He discarded his topic, "Medical Controversies of Yesterday and Today—A Contrast," and confined his talk to a recitation of humorous Scotch stories.

The Yonkers Academy of Medicine held its annual meeting at the Hudson River County Club in Yonkers on May 21. Dr Barclay Parsons, attending surgeon at Presbyterian Hospital in New York, presented a paper on "Side Issues of the Thyroid Problem." In the executive session, Dr Virginia Minervini was elected president of the Academy, succeeding Dr Wilbur W Stearns. Dr Romeo Roberto was elected vice-president, Dr Jacob Kertzman, second vice-president, Dr Angelo R Onorato,



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(Continued from page 1494)

recording secretary, Dr Edward J Maychick, corresponding secretary, and Dr A. A. Morrone, treasurer. New councilors elected were Drs George B Stanwix and Eugene F Kelley.

The White Plains Medical Society held a regular meeting on May 13 at the Westchester Hills Country Club. Approximately thirty-five members were present. The Sports Committee, under the chairmanship of Dr Arthur S Strauss, reported that there would be three golf matches held in June, July, and September. Major Edward H Marsh, of White Plains, who is now attached to the Surgeon's Office at the Headquarters of the Second Corps Area on Governors Island, was the speaker of the evening. The subject of his talk was "A Doctor Looks at Mobilization." He gave an interesting picture of the new soldier's routine from the time of receiving his questionnaire to the time he becomes a regular Army man. Following the meeting, a collation and entertainment were enjoyed.

The New Rochelle Medical Society held a regular meeting on May 12 at the New Rochelle Hospital. Dr David Sloane, of Larchmont, presented a paper on "The Role of the General Practitioner in the Treatment of the Crippled Child."

Yates County

The Lake Keuka Medical and Surgical Association met on July 10 and 11 at the Keuka Hotel

on Lake Keuka. Some of the speakers and subjects were as follows:

Dr Lous Faugetes Bishop, Jr., Bellevue Hospital, New York City "Semle Heart, Observations, Prognosis and Management."

Dr Lee Adrian Whitney, Genesee Hospital, Rochester "Modern Management of Fractures."

Dr John W Norcross, Lahey Clinic, Boston "Haematology from a General Practitioner's Point of View."

Dr James E King, University of Buffalo "Pruritus Vulvae."

Dr Raymond J Pieri, Syracuse University "Direct Supra-Vesical Caesarian Section" (motion pictures).

Dr William Johnson, St Jerome's Hospital, Batavia "Reminiscences, Serious and Other wise—1892 Model," with comments by Dr A. A. Aaron, University of Buffalo, on "1912 Model."

Dr Donald Guthrie, Robert Packer Hospital, Sayre, Pennsylvania "Pre-Operative Care of Toxic Goitre Patient."

The summer medical meeting of the Lake Keuka group draws from all parts of New York and adjoining states. Leading physicians and surgeons from New England, Pennsylvania, Ohio, and the midwest, in addition to representatives of ranking institutions in New York State, attend each year. Dr Leon M Kvsor, Hornell, is president, Dr Noble Chambers, Syracuse, vice-president, and Dr Virgil H F Boeck, Dundee, secretary-treasurer.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Edgar B Armstrong	60	P & S N Y	April 20	Manhattan
Hjalmar V Barclay	81	N Y Univ	June 23	Corona
Isabel A. Church	80	Buffalo	June 17	Yorktown Heights
Murray L Kaplan	46	Hessian Govt	June 24	Manhattan
George S Lape	63	Albany	March 11	Binghamton
Charles V O'Brien	56	Syracuse	June 18	Brooklyn
William F Ward	68	Hahne, Phila	March 11	Binghamton

ACE'S PART IN THE GRAND SLAMS

"In my opinion over 50 per cent of the crashes in aviation can be attributed to the pilot, and generally poor judgment on the part of the pilot will cover many mishaps," Dr Frederick Ceres, Captain, Medical Corps, United States Navy, Pensacola, Florida, declares in an article on "Aviation Medicine in the United States Navy," in the first issue of the new bimonthly publication, *War Medicine*.

"It is my belief that high physical and mental fitness will produce an alert, clear mind and quick reactions," the Captain continues by way of explanation of his declaration that one of the most important functions of the Aviation Medical Section in the Medical Department of the Navy is the maintenance at a high level of physical fitness of naval aviators.

He says that "the primary mission of the Aviation Medical Section of the United States Navy is to keep as many aviators flying in as many airplanes as are available as many days as possible. This is aviation medicine."

THE OTHER HALF

The other half do not come out!

The other half lets George do it!

The other half has the same problems, are benefited by the same actions, but, like the proverbial vest, let the pants and the coat do all the work while they get all the gravy.

The other half is indeed the other half. Not a separate part of the medical profession, not someone whose actions and attitudes do not affect the others.

Do you belong to the other half? Are you among those who never attend meetings? Never participate in society activities? Never help in solving problems?

If you are, snap out of it. Do yourself and this society and the profession to which you are privileged to belong some good. Attend the meetings. Hide not your light under a bushel. You have good ideas, sound plans, and a vital interest in what happens. Attend meetings—*Exchange*, quoted in *Westchester Medical Bulletin*.

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ROUTINE IS IMPORTANT

There is hardly anything worth mentioning that is not enhanced by even the slightest semblance of "routine"

If we want to go as far as being technical about the matter, actually there are few things, organizations or individuals capable of existing without more or less routine. It may be affected or forced upon us. It is there, however, call it system or details or whatever you choose.

To some it becomes a drudgery. To others, it is a foundation upon which they build.

Look about you, analyze your own day, and you find a specific routine. It may break down, time and time again, but you go back to it as often as it may be interrupted.

It is not at all strange, therefore, to find that our hospitals and sanitariums are the best examples of the value of routine. Check the activities of a hospital or sanitarium. The patient is admitted, undergoes a strict examination, is placed under observation day and night, is treated and nursed methodically, and even in a period of convalescence is encouraged to repeat some daily formula until fully recovered.

Routine in the institution is evidence of sincerity in providing every possible aid for the benefit of the patient. The amount of routine work covered and its extent of efficiency should be at least one yardstick for evaluating the hospital or sanitarium recommended for your patients.

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Woman's Auxiliary

To the Medical Society of the State of New York

"AS LONG as there are postmen, life will have zest."—*William James* Hence, we are printing excerpts from a letter reporting the highlights of the A.M.A. Convention.

Dear Sara

Where were you this Convention? I went out on the sleeper Saturday and arrived at the Carter at 7 30 A.M. Sunday. Having somehow slipped under the dignity line last year and been invited to the tea Sunday afternoon and the dinner Monday night, I thought it followed that I could go this year. But I guess those things aren't "crashable." So, I can't tell you a thing about the tea that was held at the Women's City Club for the National Board of Directors honoring Mrs. Holcombe.

Monday noon I found the familiar faces of most of the New York delegation at the luncheon at the Petit Cafe in the Carter. There were fourteen of us. Mrs. George B. Adams, president and National Board member, Mrs. John Bauer, national recording secretary, Mrs. G. Carlton Potter, national director, Mrs. Carlton Wertz, Erie, Mrs. G. Scott Towne, Saratoga Springs, Mrs. Michael Schultz, Queens, Mrs. Wm. J. Lavalle, Queens, Mrs. Hirsch, Kings, Mrs. Otto Pfaff, Oneida, Mrs. Arthur J. Bedell, Albany, Mrs. L. H. Kice, Nassau, Mrs. H. F. Pohlman, Orange, Mrs. W. W. Street, Onondaga, Mrs. Alfred Madden, Albany, and Mrs. Earl of Oneida.

Most of us went on the sightseeing trip which included the airport. On the way back we were entertained at tea at the Lake Shore Hotel. That evening those of us who couldn't go for an air ride saw the New York State delegation, Mrs. Adams, Mrs. Bauer, and Mrs. Potter, looking very festive indeed, off to the dinner honoring the board of directors. It was held at the Union Club and Dr. Norman C. Yarian gave an illustrated talk on "Orchids."

On Tuesday work began in earnest and everything moved along smoothly as scheduled. The guest speaker was Miss Etta A. Creech who talked on "What Is Sound Health Education?" We were very proud to hear each of the standing committees mention New York State specifically as having done outstanding work. That made us just about 100 per cent in all departments. At the luncheon Dr. Van Etten mentioned the accomplishments of the Auxiliary in legislation in New York State.

The luncheon was held in the Rainbow Room of the Hotel Carter, honoring the past presidents of the National Auxiliary. Dr. Van Etten and Dr. Fishbein spoke to us. After luncheon there was a round-table discussion, "New Year," with Mrs. Charles H. Werner and Mrs. R. E. Mosiman, president-elect, presiding. National officers, state presidents, and state chairmen were invited to attend. For an hour there was an open discussion of auxiliary problems and how they have been handled in different sections of the country. I found it intensely interesting and stimulating.

Then we went on to the Cleveland Health Museum. I understand it is the only one of its

kind in the United States. Here exhibits are open to the public with the first floor devoted to Man's Heart, Man's Head, Man's Hands. The second floor has a room devoted to Mother and Child, another to fitness for defense, another to teeth. There are also special exhibits: Progress in Medicine, Periodic Health Examination, and Hands of Famous Surgeons. Then we were entertained at a lovely tea by wives of the trustees of the museum. That night we went to the open general meeting of the American Medical Association. There we witnessed the installation of Dr. Frank H. Lahey as president. In his address Dr. Lahey touched briefly on the precision of medical personnel, for the public deferment of medical students, selective act, medical education, elevation of medical standards, the nursing situation, anesthesia, and postgraduate education. Dr. Lahey stated his opinions clearly, there could be no doubt as to what his views were or why he held them. I liked his closing line, "a dangerous course has real advantages. It is the 'blood, sweat and tears' of the American Medical Association."

The Distinguished Service Medal was awarded this year to Dr. James Ewing, of New York City, for his outstanding work on cancer.

To go on Wednesday at 9 00 A.M. there was more session. This time the guest speaker was Dr. Helen A. Hunscher who spoke on "Nutrition Food for Fitness." She told us what went on at the government conference on nutrition called by the President. It looks as though we will all be "nutrition conscious" this year. To save time in making their reports the state presidents went up on the rostrum in a body, each carrying the flag of her state.

At the luncheon, held again in the Rainbow Room of the Carter, Dr. W. W. Bauer, Bureau of Health Education of the American Medical Association, spoke to us. The Advisory Council of the National Auxiliary was introduced, and then Dr. Lahey addressed us, followed by the Honorable Hatton W. Summers, chairman of the Judiciary Committee, House of Representatives, who blew off our bonnets with blasts against the attitude of the country today and the apathy of the people in general in relinquishing their democratic rights.

Afterward we went back to finish up the session of delegates. The slate presented by the nominating committee moved New York State's Mrs. John Bauer from recording secretary to first vice-president, president-elect, Mrs. Frank Haggard, Texas, second vice-president, Mrs. A. E. Anderson, California, third vice-president, Mrs. H. E. Christenbury, Tennessee, fourth vice-president, Mrs. P. R. Winston, Michigan, recording secretary, Mrs. Samuel Flowers, Kentucky, treasurer, Mrs. David Thomas, Pennsylvania, directors, one year, Mrs. Holcombe, West Virginia, Mrs. Oldenberg, Ohio, two years, Mrs. John B. Farley, Colorado, Mrs. James B. Simonds, Illinois, Mrs. W. K. West, Oklahoma. Following the election of officers, Mrs. Mosiman spoke, giving us the

[Continued on page 1500]

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Physicians, arminded, should be keenly interested in offerings made by air transportation companies of vacations by air

One company, whose GTM comments that Americans are learning that air travel may be for pleasure as well as for business, has announced new inexpensive air cruises. This is not only a new idea for vacations, but marks as well, a step forward in making air vacations really popular by bringing the rates within reach of more vacationers

These particular air cruises feature trips to our northern neighbor, Canada, and rates include transportation from New York and return, sightseeing in Canada, and hotel accommodations for a choice of vacations from five days to two weeks. Other combination vacation land cruises to Florida include plane side trips to Cuba

Transportation by air is advantageous to the vacationer because the shorter traveling time permits longer periods of stay at the vacation resort

For those considering Canada as a vacation point this year, there is the additional incentive of having their money stretch further. The American dollar is worth, at present, \$1 10 in Canadian currency. Government officials of the Dominion are also appealing to the American tourist by pointing out that every tourist dollar is used for Canada's war efforts. To publicize this, pins are distributed by the company conducting the air cruises, with crossed American and Canadian flags and the legend—"Vacation in Canada. American money spent there fights for Democracy"

Information and reservations for the air cruises are easily obtainable at accredited Travel Agencies and Bureaus

One five-day cruise features a flight to Montreal with sightseeing to Mr. Royal, Brother Andre's Shrine, Westmount Lookout and many other points of interest. On the longer cruises of two weeks, Murray Bay and the Saguenay may be visited by steamer or additional time can be spent at the fine resorts in the Laurentians. Ample time is permitted for shopping tours during the various cruises in either Montreal or Quebec

A second five-day air cruise provides sightseeing in Montreal for a day and a voyage down the St. Lawrence to Quebec. Accommodations are arranged for at the famous Chateau Frontenac, and side trips are made to Ste. Anne de Beaupre, Montmorency Falls and through the quaint streets of Quebec so reminiscent of those in ancient towns of France

A six-day variation of the above cruise may also be taken. In place of the steamer trip, this cruise features a motor tour between Montreal and Quebec

For vacationers with a full week to spend away from business cares, there is a trip that includes a steamer voyage to Quebec and Murray Bay, and up the Saguenay River. For those who are able to stretch the time to a full week and two weekends, the steamer journey can be extended to a six day water cruise visiting in addition to Quebec, such quaint French-Canadian towns as Tadoussac and Bagotville

Another air cruise of from seven to fourteen days offers a choice of the river cruise to fashionable Murray Bay or a pleasant sojourn at the famous resorts in the Laurentian Mountains

A choice of any of these vacation suggestions would be a good selection and a Summer treat not soon forgotten

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[Continued from page 1498]

highlights of her plans for the coming year. She touched briefly on each committee and we are fortunate in having a president with definite constructive work laid out. This meeting adjourned too late for us to take the trip to the Cleveland Cultural Center in Wade Park. But that night we did go to the reception honoring Mrs. Holcombe and Mrs. Mosiman. This was held at the Cleveland Academy of Medicine. A delightful musical program had been arranged for us and a talk by Kay Halle on the "Highlights of Cleveland"—historical, industrial, cultural, geographical. Then we were served a delicious wine punch and sandwiches and went upstairs to the Academy's medical museum. Thursday we had a bus trip through the lovely cultural gardens of Rockefeller Park, out through the exclusive Shaker Ridge residential section with its beautiful homes and on to the Country Club. There we had a delicious luncheon and grand fashion show in exquisite surroundings. The club is done in early American and reminds one of Williamsburg with its gorgeous crystal

chandeliers, hooked rugs, paneled rooms, etc. Thursday night, Mrs. Potter, Mrs. Towne, and I were the only ones left to go to the Auxiliary dinner and a reception and ball in honor of Dr. Lahey. But don't worry—we did you all proud. Then, Friday, I tried to fly home. I figured maybe the trouble with my not getting off the ground was that I kept trying for free flights. So-o-o with my last will and testament in one hand and my money in the other I called for a reservation. "All seats are taken on the 245 plane"—and that was the only one to Albany.

See you in Atlantic City.

MARY G. MADDEN

We are glad to welcome Warren County, and congratulations to Mrs. Leonard A. Hulseboach, the newly elected president.

Every good wish to each auxiliary for a pleasant summer vacation. May I hope to receive news from each county in September, and every month throughout the year.

OSLO PHYSICIANS REBEL AT "NEW ORDER"

An attempt by Major Vidkun Quisling's administration to introduce a "new order" into Oslo's lunatic asylum and what amounts to a kidnapping of its directors by the Hirden [Quisling Storm Troopers] have provoked a revolt by the entire body of Oslo physicians and medical personnel—about 2,000 in all—who threatened to stop work if political considerations received priority over purely professional qualifications, says a report from Stockholm to the *New York Times*.

Without the slightest reason the Quislingites decided to replace the chief sick warden of Dikemark, Oslo's lunatic asylum, directed by a psychiatrist of international repute, Dr. Roly Gjussing, by a member of the Nasjonalsamlag. Dr. Gjussing protested against this nomination, emphasizing that the nominee did not have sufficient professional qualifications, but his protest was to no avail.

Thereupon, all the chief doctors of community hospitals in Oslo drafted a protest to Major Quisling's administration in which they emphasized that the only criterion for the nomination of medical personnel must remain professional capacity. "If hospital personnel is dismissed for purely political reasons, the professional standards and efficiency of our hospitals will deteriorate, which in turn can have incalculable consequences for the health and even the life of our patients," the protest said.

Consequently, the chief doctors announced that they and all their colleagues, as well as the nurses and attendants, would resign if this practice was not abandoned.

On April 25 a group of the Hirden arrived at the Dikemark asylum and demanded to see Dr. Gjussing. When told he was examining a patient they went into his office and made him interrupt the treatment and drove him away to some unnamed place in Oslo.

On April 29 sixteen head doctors of Oslo hospitals gathered again in a special meeting and drafted a protest addressed to the Police Department, expressing indignation at the Dikemark incident and demanding the immediate release of Dr. Gjussing.

"Gjussing was arrested by individuals without police authority," read the protest, "and without even showing a warrant for his arrest. A public servant has been brutally interrupted in his work. He was removed from a more than usually responsible doctor's position without having the opportunity to take the necessary dispositions."

The relation between the patient and his doctor, which in all civilized countries is considered most sacred, has been violated. This is a revolting breach of the most elementary rights."

For the sake of the sick the doctors "demand guarantees for the protection of peaceful work, which is the foundation of all hospital work. If anything happens we decline all responsibility for the sick and we will be compelled to resign," the protest added. "This can be taken as the view of all doctors, assistant doctors, and medical candidates."

There has not yet been any answer to this or to the previous protest, and Dr. Gjussing is still in the Hirden's hands. At Oslo Police Headquarters a Swedish correspondent was told that the protest was being examined, and the responsible Hirden had been interrogated to discover the reasons for their action.

This conflict is considered throughout Norway as comparable in its gravity to the resignation of the Norwegian Superior Court of Justice and the famous protest letter from the Norwegian Bishop. The issue of it will decide whether one of the most sacred principles of civilization will be sacrificed by the totalitarian "new order."



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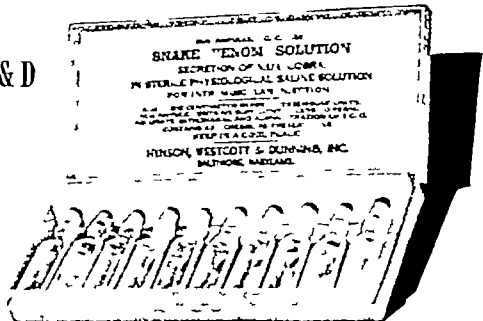
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The solution does not produce the objectionable reactions of morphine; it is not habit forming; the margin of safety is wider; patients do not develop tolerance. Dosage is usually reduced rather than increased after relief has been established. No venous untoward reactions or changes in the blood of vital organs have been reported, but the solution should be used under careful medical supervision.

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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn N 1. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

RECEIVED

The Story of Clinical Pulmonary Tuberculosis By Lawrason Brown, M D. Octavo of 411 pages. Baltimore, Williams & Wilkins Company, 1941. Cloth, \$2 75.

Medical Diagnosis and Symptomatology By Samuel A. Loewenberg, M D. Fifth edition. Quarto of 1,139 pages, illustrated. Philadelphia, F. A. Davis Co., 1941. Cloth, \$12.

The Medical Aspect of Boxing By Ernst Jöhl, M D. Octavo of 251 pages, illustrated. Johannesburg, South Africa, The Author, Witwatersrand Technical College, Eloff Street, 1941. Cloth.

A Manual of Allergy for General Practitioners By Milton B. Cohen, M D. Duodecimo of 156 pages. New York, Paul B. Hoeber, Inc., 1941. Cloth, \$2 00.

Cardiac Classics A Collection of Classic Works on the Heart and Circulation with Comprehensive Biographic Accounts of the Authors. Fifty-Two Contributions by Fifty-One Authors. By Fredrick A. Willius, M D., and Thomas E. Keys, M A. Quarto of 858 pages, illustrated. St. Louis, C. V. Mosby Co., 1941. Cloth, \$10.

Oral Pathology A Histological, Roentgenological, and Clinical Study of the Diseases of the Teeth, Jaws, and Mouth. By Kurt H. Thoma, D M D. Quarto of 1,306 pages, illustrated. St. Louis, C. V. Mosby Co., 1941. Cloth, \$15.

Medical Manual of Chemical Warfare Reprinted by Permission of the Controller of His Britannic Majesty's Stationery Office. First American Edition. Octavo of 104 pages. Brooklyn, Chemical Publishing Company, 1941. Cloth, \$2 50.

Approved Laboratory Technic. Clinical Pathological, Bacteriological, Mycological, Parasitological, Serological, Biochemical and Histological. By John A. Kolmer, M D., and Fred Boerner, V M D. Third edition. Quarto of 921 pages, illustrated. New York, D. Appleton-Century Co., 1941. Cloth, \$8 00.

Hernia. By Alfred H. Iason, M D. In Three Sections. Historical Evolution of Hernial Surgery, Technical, Medico-legal Aspects. Quarto of 1,325 pages, illustrated. Philadelphia, The Blakiston Company, 1941. Cloth, \$15.

Clinical Aspects of the Electrocardiogram Including the Cardiac Arrhythmias. By Harold E. B. Pardee, M D. Fourth edition. Octavo of 434 pages, illustrated. New York, Paul B. Hoeber, Inc., 1941. Cloth, \$5 75.

The Principles and Practice of Ophthalmic Surgery By Edmund B. Spaeth, M D. Second edition. Octavo of 886 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$10.

A Textbook of Ophthalmology By Sanford R. Gifford, M D. Second edition. Octavo of 470 pages, illustrated. Philadelphia, W. B. Saunders Company, 1941. Cloth, \$4 00.

Essentials of Endocrinology By Arthur Grollman, M D. Octavo of 480 pages, illustrated. Philadelphia, J. B. Lippincott Company, 1941. Cloth, \$6 00.

Foundations of Neuropsychiatry By Stanley Cobb, M D. Second edition. Octavo of 231 pages, illustrated. Baltimore, Williams & Wilkins Co., 1941. Cloth, \$2 50.

The Biologic Fundamentals of Radiation Therapy A Textbook. By Friedrich Ellinger, M D. Octavo of 360 pages, illustrated. New York, Nordeman Publishing Company, 1941. Cloth, \$5 00.

The Medical Clinics of North America. May, 1941. Volume 25, Number 3 (New York Number). Octavo. Illustrated. Philadelphia, W. B. Saunders Co., 1941. (Six numbers a year). Cloth, \$16 net, paper, \$12 net.

Synopsis of Diseases of the Heart and Arteries By George R. Herrmann, M D. Second edition. Duodecimo of 468 pages, illustrated. St. Louis, C. V. Mosby Company, 1941. Cloth, \$5 00.

The New International Clinics Original Contributions. Clinics, and Evaluated Reviews of Current Advances in the Medical Arts. Edited by George M. Piersol, M D. Volume II, New Series Four. Octavo of 299 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1941. Cloth, \$3 00.

An Introduction to Medical Science By William Boyd, M D. Second edition. Octavo of 358 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$3 50.

Accidental Injuries The Medico-Legal Aspects of Workmen's Compensation and Public Liability. By Henry H. Kessler, M D. Second edition. Octavo of 803 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$10.

Elimination Diets and the Patient's Allergies A Handbook of Allergy. By Albert H. Rowe, M D. Octavo of 264 pages. Philadelphia, Lea & Febiger, 1941. Cloth, \$3 00.

A Primer for Diabetic Patients. An Outline of Treatment for Diabetes with Diet, Insulin and Protamine-Zinc Insulin. Including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions. By Russell M. Wilder, M D. Seventh edition. 16mo of 184 pages. Philadelphia, W. B. Saunders Company, 1941. Cloth, \$1 75.

[Continued on page 1501]

A Guide to Select Schools



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CLEAN HANDS AND CERTAINTY

Five days after the publication date of this issue of your JOURNAL is "St. Pontius Pilate Day." It is, if we are to believe the contents of an old almanac

If you are not familiar with this special date on the calendar or its significance then you will want to know that St. Pontius Pilate is the patron saint of politicians, lawyers, lavatory attendants and of all good people who wash, wash, wash their hands

A lot of water has splashed over the hands of the world since Pilate washed his of a bad decision, but clean hands have come to mean something more valuable to mankind than just an expression of clearing one's conscience. Humans have become a lot more careful about the handling of objects others are to dine on or convey to their mouths

We have become so accustomed to seeing foods packaged that we almost give as little thought to the contents as we do to the packing. Perhaps we get too much of the impression that protection of a cover is surety of quality inside

The same may hold true for drugs and dietary products used in the practice of medicine. Fancy and sealed

wrappings do not always contain the finest products. Of course, a manufacturer who takes pride in the perfection of his product will generally take an equal pride in the appearance of the package that conveys it. He even goes further and designs the package in a shape most practical and convenient for use as well as display

On the other hand, the manufacturer less scrupulous will attempt to conceal poor quality with de-luxe trimmings that shout quality but do not back it up. To the layman, the beauty of the package may be a selling point and he or she may be influenced to some extent in purchasing a substitute and paying more for something actually worth less

A physician, however, would know better especially pertaining to drugs and medicines. He has a choice of a number of reliable manufacturers for everything he uses—and generally makes a preference of one or two where all produce the same product

How he obtains such preference may be a mystery even to himself—but he has acquired a good share of his opinions from watching and reading the advertisements that appear in this JOURNAL.

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[Continued from page 1502]

REVIEWED

The Treatment of Diabetes Mellitus By Elliott P. Joslin, M.D., Howard F. Root, M.D., Priscilla White, M.D., and Alexander Marble, M.D. Seventh edition. Octavo of 783 pages, illustrated. Philadelphia, Lea & Febiger, 1940. Cloth, \$7.50.

This seventh edition carries forth the reputation built in previous issues. The work is rather encyclopedic in its scope. Dr. Marble's chapter on the physiology of diabetes and general considerations is well worth reading, not so much for new contributions but for its excellent outline of pertinent information gathered to date. His several hundred references are conveniently listed and add much to the value of the work. This favorable criticism carries throughout the book.

Dr. Howard F. Root's excellent section, "The Pathology and Causes of Death in Diabetes," is especially interesting because of the recently revived importance of pancreatic pathology in the concept of the disease. Throughout the book there are numerous references to the work of Best and of Lukens on diabetes of pituitary origin produced by parenteral administration of anterior pituitary extract.

Dr. Priscilla White has again covered the fields of diabetes in children and diabetes in pregnancy with her usual skill.

Dr. Joslin has rendered a real service to the medical world in the continued production of this important work.

GEORGE E. ANDERSON

The Extra-Ocular Muscles A Clinical Study of Normal and Abnormal Ocular Motility. By Luther C. Peter, M.D. Third edition. Octavo of 368 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$4.50.

This book has been a standard American text on this troublesome subject ever since the first edition appeared 14 years ago. Much has been written and published on the eye muscles, but it remained for Dr. Peter to correlate it all and to add the results of his own extensive clinical experience. He has condensed it all into a meaty and wholesome text of some 360 pages which is complete without being padded, detailed without being dull, and presented in a style charming to read and easy to understand and remember.

The chapters on heterophoria and heterotropia are especially comprehensive and valuable, leaving the reader with a clear understanding of the subject. A new chapter on orthoptic training has been added to this edition which should be of immeasurable help in clarifying its use for those clinicians desiring to train technicians. There are many excellent illustrations and a complete index.

WALTER V. MOORE

A Laboratory Manual of Physiological Chemistry By D. Wright Wilson. Fourth edition. Octavo of 298 pages. Baltimore, Williams & Wilkins Company, 1941. Cloth, \$2.50.

This manual, which is intended for teaching purposes, is divided into two parts. Part I

deals with tests for inorganic constituents of biologic material, electrolytic dissociation, hydrogen-ion concentration, and colloids, also tests for alcohols, aldehydes, esters, carbohydrates, proteins, and fats. In Part II are given tests for body tissues and fluids, such as saliva, gastric and pancreatic juice, milk, blood, bone, muscle, bile, and urine. There are also metabolism and dietary deficiency tests. This manual should prove of value to the laboratory worker interested in physiologic chemistry as well as clinical chemistry.

E. H. NIDISH

The Therapy of the Neuroses and Psychoses. A Socio-Psycho-Biologic Analysis and Resynthesis By Samuel H. Krames, M.D. Octavo of 512 pages. Philadelphia, Lea & Febiger, 1941. Cloth, \$5.50.

The author regards psychiatry as dealing with the entire realm of abnormal human thinking, feeling, and acting in the social, psychologic, and biologic setting. He presents an adequate classification of the psychiatric states and the fundamental psychology of the psychoneuroses and psychoses. He pays considerable attention to the dynamics of symptoms, their meanings, and their interpretations.

He reviews the various schools dealing with the different subjects. Adequate evaluation of all types of therapy are presented, and the modern forms of shock therapy are evaluated. He has stressed those points of therapy which he has found most valuable. There are many case abstracts illustrating the different reaction patterns and forms of therapy.

It is a good book, both instructive and challenging. It is highly recommended. A bibliography to fundamental topics and subjects might enhance the value of this book.

IRVING J. SANDS

Principles of Abnormal Psychology. The Dynamics of Psychic Illness By A. H. Maslow, Ph.D., and Béla Mittelmann, M.D. Octavo of 638 pages. New York, Harper & Brothers, 1941. Cloth, \$3.50.

This excellent book on abnormal psychology, intended for the general practitioner and the college student, will prove a valuable addition to the few good books on this subject.

It does not adhere strictly to any one school of psychology but combines the desirable features of each. The elucidation of symptoms and their treatment is stressed throughout the book. The subject matter has been presented in a readable fashion, and the general practitioner will find it valuable in the treatment of many of the neurotic patients who come under his care.

There is an excellent glossary and a chapter on projective methods of examination which is helpful. The explanation of the symbols in the Rorschach test, the suggested readings at the end of each chapter, and the comprehensive bibliography will be found useful to those who seek further information on the subject.

JOSEPH L. ABRAMSON

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Editorial

Rehabilitation a Military Duty

"Registrants," said Brigadier General Hershey on May 23 of this year, "owe a duty to their government for service. That obligation calls for the service of a whole man—a man entirely alive—a healthy, strong, well-developed man. It is the duty of the registrant faced with this responsibility, to use every means available to make himself fit to serve."

In these words General Hershey states clearly and unequivocally the concept that every citizen has an obligation to perform his military duty and that no citizen should be permitted by reason of curable defect or infirmity to hide behind such defect or infirmity to avoid this obligation.

The question here raised is of the utmost gravity. No one will deny that the public interest, the public safety is paramount. No one will deny that especially in a time of unlimited national emergency the means to this end are justifiable. The government is requiring every qualified registrant to place his life in jeopardy in the interest of national defense. But what does government require of the physically disqualified? Of those men classified as 1-B? Or 4-F?

Medical Bulletin No. 5, June 30, 1941,* prepared by the Medical Division, New York City Selective Service Administration, under the direction of Samuel J. Kopetzky, Colonel, M. C., Medical Director, has this to say: "From a standpoint of rehabilitation, a considerable number

of men in 4-F will be found to have defects which medical therapy could correct and render them fit for full military duty. Furthermore, there will be found many classified in 1-B who are absolutely beyond the efforts of any medical care to render them fully competent for full military duty."

When the facts are fully known as to how many men in these classes can be rehabilitated by medical or surgical treatment, how many can be made available for "full military duty," what then? You have read above the attitude of Selective Service authorities as voiced by General Hershey that it is the "duty of the registrant faced with this responsibility, to use every means available to make himself fit to serve." And if the registrant does not see it that way, what then?

The *Bulletin* says: "an effort was made by this Headquarters to try a voluntary experiment in the area of one Local Board in Queens County where ancillary organizations were integrated to help the registrants rejected to quickly and easily secure medical service to relieve remediable deficiencies. This effort has been going on," says Colonel Kopetzky, "for two months, but I note no marked reaction accompanying this effort."

Physicians have contended from experience that many people would refuse medical care however readily and easily it was made available—even if it were put upon their very doorsteps. But, on

* Reprinted in full on page 1587

the other hand, many others interested sincerely in the betterment of the public health have thought otherwise and have said so

Now, apparently, further attempts are to be made to secure reliable evidence on this point, according to the *Bulletin*. "At each Local Board there will be one of these volunteer social workers who will make contact with the registrants classified in both 1-B and 4-F. A blank has been prepared which the registrant will fill out with the aid and assistance of the social worker. On this blank, among other things, the registrant will be asked

Will you accept remedial therapy

from your own private physicians? Give name of your private physician. If you are unable to employ a private physician will you use existing facilities in hospitals, voluntary or municipal, which have extended their facilities for this work to you, to have your defects corrected?

This procedure should yield statistics which will end all conjecture and controversy as to the facts. When these are definitely established, further consideration of rehabilitation, or prehabilitation, for registrants may properly follow a course to be determined when and after the facts are known.

Disease Is Our Business

We now live in a state of unlimited national emergency. Why? To many people, including some physicians unfortunately, these words "unlimited national emergency" are as the laughter of fools signifying nothing, being—as yet—unaccompanied by audible sound and fury. But to others they have a sinister meaning. They are a national dedication to a new way of life, not as formerly to peace and happiness but to war and destruction. They warn that the current of a great civilization has been abruptly reversed.

The frightful spectacle of European destruction which we have been observing from afar with foreboding has appeared, and to some still appears, to be only another war, war which has always been frightful, destructive, but which we have known before and shall see again in the days of our years. Many behold it with the eyes of Peter Ball¹ to whom

"A primrose by the river's brim

"A yellow primrose was to him,

"And it was nothing more."

But is this only war? This European thing? Look at it more carefully, physicians! You have trained eyes. Do you see nothing more than just another war? Or do you see something else? A

sickness perhaps, a deadly social malady of which the war is the festering ulcer? Do you suppose this sickness is responsible for the fact that, here in America, we now live in a state of unlimited national emergency? If so, what do you know about this sickness? Have you studied it? What do you know about it?

Medicine is not interested in war as war. It is the plaything of ambitious politicians. But disease, sickness, is our business. We should know about that. If war comes to us, Medicine can and will provide capable medical officers to the armed forces, it has done this before, it can do so again. Wars come and go. But what of the disorders beneath? What of the social maladies? What of these things, these diseases, which have produced "that bad man" with his ulcerous total war? Are you studying those diseases, physicians? Has Medicine sufficiently interested itself in these things? Has it studied them scientifically? Has it contributed to their relief and cure? Sickness is the business of Medicine. These social maladies have not fallen upon us like a sudden epidemic of influenza. They have been with us for a long time.

But because they did not break out with rashes or have vomiting spells or protruding eyeballs they were not recog-

¹ Peter Ball. W. Wordsworth. Part I. Stan. 12.

nized always, many did not and perhaps do not consider them to fall within the proper sphere of traditional medicine, but there they are, and they cannot be wished away. Some of these diseases were mere ideas in their inception not so long ago, little ideas which, in an environment of want, loose thinking, and neglect, flourished in those areas of cities long ago abandoned by the medical schools. Some of those dirty little ideas with running noses are now, with the passage of time, large ideologies. Are you studying them, physicians? You are no more immune from these social diseases than the rest of the population. They have grown, those diseases and the ideologies which were once little ideas, until they have crowded this Nation to the very brink of war as

the only remedy available, they have grown until they have reversed the whole current of our civilization, until "we have on our hands today a war without a definite prospect of peace" because "the enemy does not recognize peace as we know it, and we ourselves cannot define it."²

It appears to be imperative that Medicine should broaden its concept and study to include those diseases of society, those social disorders among which it must live and move and have its being. To neglect this study is to invite oblivion, or

"Is it nothing to you, all ye that pass
by?"³

² Fortune 24 No. 1, 34.
³ Lamentations I. 12.

Eternal Vigilance

It is a fixed policy of the Medical Society of the State of New York to safeguard the modes of medical practice which have secured to the communities of the state its present high level of health. These modes of practice, providing preventive, curative, and public health measures, have been the outcome of a slow but reliable method of trial and error by which the proved good has been retained and the unworkable or undesirable has been thrown out.

Now it is inevitable and inescapable that under the banner of National Defense, and because of the pressure of lack of time for full debate and inquiry, many propositions will arise from diverse quarters—proposals to inaugurate new medical services or to expand existing ones in the service of the communities. Some of these proposals may be good, others bad, only time and experience can decide.

The 1941 meeting of the House of Delegates declared "It is the expressed policy of the Medical Society of the State of New York that, at their introduction, the temporary nature of necessary health measures be stressed as they are developed

and that no general program shall be approved coming under the terms of 'part of the Defense program' which would permanently change the nature and mode of the present method of medical practice."

This is, in effect, a mandate to the legislative committee to exercise in the future more than its usual vigilance in scrutinizing and analyzing all Federal and state bills which might constitute part of the Defense Program and to appraise their medical significance. The tendency among legislators is to enact such legislation loosely as is asked for by the administration without writing in any limitation as to time of expiration.

A noteworthy example is the Reconstruction Finance Corporation. It was created by Congress to make distress loans to agriculture, business, and banking under the Hoover administration—and for the duration of the emergency only. Simply that and nothing more. It is still going. Of itself and through its creatures it is interested in nearly every kind of business there is. Senator Adams said of it "that under the bill the RFC

could enlist and drill an Army if they assert it is in the interest of national defense "

We cannot urge too strongly that the mass of coming legislation be carefully

combed by the legislative committee for amendments and riders which often constitute the rent in the fabric through which the camel eventually enters the tent

District Branch Meetings

Arrangements have now been completed for the annual meetings of the District Branches

Date	Branch	Where Held
Sept 18	Sixth	Bassett Memorial Hospital, Cooperstown
Sept 23	Fifth	Syracuse
Sept 25	Seventh	Oak Hill Country Club, Rochester
Sept 26, 27	Fourth	Lake Placid Club, Lake Placid
Sept 30	Third	Catskill
Oct 2	Eighth	Jamestown
Oct. 8	First	Mt Sinai Hospital, New York City
Nov 12	Second	Garden City Hotel, Garden City, Long Island

In these rapidly moving times it behooves the membership of the State Society to attend these meetings and to profit by the programs which this year will be of exceptional interest and timeliness

We therefore publish at this time the schedule of these meetings in order that you may note the dates and locations. You may not say that you have not been notified well in advance. Of course, you may not read your JOURNAL—that can happen to anyone—but the Editors hope that few will fall into this category. It is to be hoped that the attendance at these meetings will break preceding records. Make a note now, delay is fatal

Special Article

Military Medicine in New York State Army Posts and Camps

Foreword

MUCH has been published about men disqualified under the Selective Service Act for full military duty. Little, however, has been said about the men who have been accepted. What are they doing? How and where are they being cared for medically? What problems have been created by the new camps and the rapid expansion of old military posts in the State of New York?

Because it was felt that this information would interest readers of the JOURNAL, the editors set out to discover what they could. Through the courtesy of the military authorities of the Second Corps Area, visits were made to Plattsburg Barracks, Fort Ontario, Madison Barracks, and Pine Camp, where they were received with every courtesy and where every facility was placed at their disposal to visit

the hospitals. The following is an account of what they observed

General Conditions

At the posts and camps visited the hospitals are adequate in size and well equipped with the most recent mechanical, electrical, and other professional apparatus. Drugs and other expendable supplies are well stocked. Buildings, even where old, are scrupulously clean and evidence of recent painting is seen everywhere. In some, designed for smaller personnel, mess halls have been found inadequate, but new construction or rearrangement of rooms for this purpose is being carried out.

The hospitals are being conducted with well-organized services in medicine and surgery and with most of the special services, such as eye, ear, nose and throat, urology, x-ray, psychiatry, etc., represented. The staffs are

in most cases up to full complement. Everywhere we observed a great alertness and enthusiasm for their work on the part of the personnel, both officer and enlisted. It must be considered that most of the officer personnel have been on their present assignments less than a year and, more often, less than six months. It is a tribute to the profession and to the high quality of their training that, considering the short length of time they have worked together, the morale, teamwork, and the overall efficiency of the staffs are at once noted by the observer.

In camps and posts the function of the hospital is to provide medical service for (1) the permanent garrison, (2) the National Guard units (now federalized), which are stationed there for training, (3) the inductees as they become assigned to these units, (4) the CCC men operating within the area served by the camp or post, and (5) such R.O.T.C. units as may be assigned there for training in the summer.

No civilians are accepted for treatment except (1) those who are permanently employed at the post or camp as civilian employees or (2) accident and emergency cases occurring on or adjacent to the post. First aid is rendered when required, and the case is then referred to a civilian physician or nearby hospital.

At least eight hours of active duty are required except for the medical officer of the day, who is on duty for the full twenty-four. His duties combine both medical and administrative detail. Each regiment stationed in the area has and operates its own infirmary with its own medical officers and enlisted personnel, where sick call is held and cases are disposed of either by admission to the hospital or return to "quarters" or "duty." There is no status of "light duty." The Army's policy is that a soldier is either fit for duty or should be hospitalized, the carrying of patients "in quarters" is discouraged.

Chief nurses have the relative rank of first lieutenant and ward nurses the relative rank of second lieutenant. Their duties are similar to those of nurses in similar capacity in civil hospitals. Ward attendants do many of the arduous duties ordinarily required of ward nurses in such hospitals.

Your editors ate at the officers' mess, the food was sufficient in quantity and of good quality. They visited hospital kitchens, the enlisted men's food was good and substantial. In most places special diet kitchens were either in preparation or actually functioning where needed.

Who Is Treated for What?

It is important to visualize what is going on in this training period in order properly to evaluate the function of the Army station hospital. Into these posts and camps, expanded by the addition of new barracks, streets, and sanitary facilities, have come all kinds of units—infantry, artillery, coast guard (anti-aircraft)—in all stages of mechanization with their light and heavy tanks, their new reconnaissance cars, light and heavy trucks, motorcycles, etc. The trainees first have thirteen weeks of basic training and then commence specialized training. Thus, in addition to the ordinary expectancy of infectious diseases—infections of the upper part of the respiratory tract, measles, mumps, and scarlet fever—must be added the possibility of casualties and other injuries. Men in the camps and posts visited come from New York State principally, but some are from the Middle West. Nearly all of the officer personnel of the hospitals is derived from New York and New Jersey.

Acute surgical cases are usually handled at the post or camp hospital. Elective surgery, fractures of long bones and vertebrae, and cases that require more than sixty days of hospitalization ordinarily are transferred to a general hospital. In spite of this, plenty of work exists, and medical officers stationed at these posts and camps should not lose their technical skill and training. It must, of course, be realized that the vast bulk of the patients come from a rigorously selected and carefully hardened group of young men, with the exception of an occasional civilian employee who is injured on reservation and cannot be moved to a civilian hospital and also a few veterans occupied on CCC projects. This necessarily limits to a certain extent the variety of medical and surgical conditions to be encountered on the one hand, while the nature of the training and the increasing mechanization of the Army are creating some new and interesting problems.

Problems in Sanitation and Public Relations

The influx into various communities of large numbers of young men is bound to create a number of problems. The Army pays once a month, and the purchasing power of the men rises to a sharp peak. This is conducive to a concentrated form of recreation, although it is controlled by judicious use of the pass privilege. In the towns and villages adjacent to the camps and posts that we observed, the

utmost order was maintained by the local authorities operating in conjunction with the military police

The recreation problem outside the camps is now being taken over by the United Service Organization. While not strictly a concern of military medicine, it does have a bearing upon physical and mental health. Opportunity for recreational activities exists in local moving-picture houses, the Y M C A, and various athletic sports.

Venereal disease seems to be well under control due to the excellent cooperation between the civil and military authorities. Prophylactic stations are always accessible. The opinion was expressed that venereal disease in the Army

is on the decrease. This appears to be partly due to the educational campaigns carried on by various interested organizations. It must also be said in fairness that the inductees represent an intelligent group of men. Public health education has made great strides since the last war, the Boy Scout movement has developed, and common sense in public education has been progressive, and apparently effective, with respect to the general average of literacy. The radio, too, must be credited with its share in promoting health education. All of these considerations have weight, together with the campaign ceaselessly waged by the Medical Corps, in reducing the incidence of venereal disease in the posts and camps.

Correspondence

HEADQUARTERS SECOND CORPS AREA
OFFICE OF THE SURGEON
GOVERNORS ISLAND, N Y

July 10, 1941

To the Editor

According to information received from the Surgeon, Seventh Corps Area, the Director of the Mayo Foundation has announced that the Medicomilitary Inactive Status Training Session of the Mayo Foundation, scheduled for October 5 to October 19, 1941, will be suspended during the present emergency. Notice through

Corps Areas and Naval Districts will be published upon resumption of the school.

This announcement is submitted for the information of the members of the Medical Society of the State of New York.

Very truly yours,

C M WALSON,
Colonel, Medical Corps, Surgeon

ERRATA

IN THE article on Medical Libraries in the State of New York, published in the JOURNAL on May 15, two libraries were confused: the Library of the Division of Laboratories and Research of the New York State Department of Health in Albany, and the National Health Library in New York City.

The National Health Library in New York City is supported primarily by member agencies of the National Health Council, which coordinates the work of seventeen national voluntary health associations. The library collection emphasizes public health and preventive medicine rather than purely medical subjects. An index to current periodical literature in the field of public health is issued weekly for a small annual subscription. Members of the organizations supporting the library, and others paying a nominal fee, are entitled to the privileges of the library. The library receives, by exchange or gift, about 500 magazines and the annual users number about 1,000.

The Library of the Division of Laboratories and Research of the New York State Department of Health in Albany is maintained for the staff of the central laboratory in Albany and the Branch laboratory in the City of New York, in addition, consultation services are available to 127 laboratories of the state that are approved for bacteriologic and pathologic examinations. The library is primarily for reference and research, no materials are lent outside the laboratory. In addition to the services in preparation of bibliographies, abstracts, and translations, a current literature index is maintained on subjects of particular interest to the Division. In the Albany library are 5,800 volumes and in the Branch there are 1,334. The library receives annually 45 foreign and 68 domestic journals, and the Branch, 23 domestic and 10 foreign.

The editorial and publications section, as well as the museum of the laboratory, is in the library department. The collection of 2,000 tissue slides, mainly oncological, is available for loan to pathologists in the approved laboratories of the state and to qualified candidates.

RECENT DEVELOPMENTS IN BACTERIOPHAGE THERAPY

WARD J. MACNEAL, M D , New York City

AT THE New York meeting in 1938, I presented before the Section of Pathology and Clinical Pathology¹ a discussion of the therapeutic use of bacteriophages, particularly in sepsis. The statements made then in regard to the nature of bacteriophages and the mechanism of their action require no revision at this time. It is most satisfactory to regard them as minute, particulate living structures of extremely limited biologic adaptability, similar in general to the many other members of the group of filterable viruses. Like other living things they evidently carry on many of their vital activities through the agency of enzymes, which may, in some instances, be separated from the living particles that produce them. The effects of bacteriophages in therapy depend to some extent upon their invasion of the infecting bacteria to cause an alteration of them similar to the lysis seen in the test tube. Such effects may be observed within the urinary bladder and doubtless occur also in the intestinal lumen. However, in pus and in blood this mechanism of lysis is partially or entirely inhibited. Here the bacteriophage seems rather to alter the bacteria so that the latter become more readily subject to phagocytosis, and the bacterial destruction is then accomplished by the phagocytic cells, aided to some extent in their digestion of the bacteria by the associated bacteriophages.

Experience in clinical use of bacteriophages has been gradually accumulated. The attention and effort required for administration of these agents are such that their extensive exploitation is not likely to be sudden and rapid, and for the same reason the disease conditions are often permitted to reach the extreme stage before the bacteriophage treatment is employed.

It is still necessary to emphasize that bacteriophage therapy is directed against a specific infectious agent and is not to be regarded as a panacea for treatment of inflammation of unknown causation. The most common infections in which these agents are effective are those diseases due to the staphylococci and the colon bacilli, but there are many other infections in which they are helpful.

Intravenous administration of the bacteriophages is the method of choice. For this purpose the bacteriophage preparation² should be as free as possible from other substances that might exert a deleterious effect or cause a reaction. We have, therefore, used a culture medium in which the amino acid, asparagine, is the sole source of nitrogen, made with pyrogen-free distilled water with utmost care to exclude undesirable substances. The preparation of bacteriophages is a specialized field of bacteriologic laboratory work, and those who prepare these agents for intravenous use should devote special study to the matter. Fortunately, there is no actual difficulty in obtaining the proper bacteriophages from the laboratories offering special service in this field if the physician is able to make a specific diagnosis and to supply a culture of the infecting microbe to such a laboratory for identification and bacteriophage testing.

In 1938 there was demonstrated to this Section a patient who had recently recovered from staphylococcemia with a localization in the tibia. This boy has remained entirely well during the intervening three years. He has been seen from time to time and has received an occasional intravenous dose of phage as insurance against relapse. Our experience in the bacteriophage therapy of osteomyelitis has become quite extensive. It is evident that this agent aids in saving lives in the acute stage of hematogenous infection, in preserving the integrity of limbs free from scars and chronic sinuses, in promoting more rapid healing even after incisions have been made, and in suppressing the threat of renewed activity in latent foci of the infection weeks, months, and years after the primary disease.

Case Reports

E. W. P., one of our patients successfully treated for staphylococcemia in 1930,³ developed excruciating pain in his right tibia in May, 1938. A roentgenogram (Fig. 1) revealed a small abscess in the cortex of the tibia. The patient, himself a surgeon, elected to receive intravenous bacteriophage rather than incision and drainage. Starting with an intravenous dose of 2 cc of staphylococcus bacteriophage, he received daily injections in increasing amounts up to 5 cc. The severe pain was relieved within two days, and the patient was walking in three weeks and playing tennis at the end of six weeks. There was no

¹Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, April 29, 1941.

²From the Department of Bacteriology, New York Post-Graduate Medical School and Hospital, Columbia University.



Fig 1 Roentgenograms of the right leg of E W P on May 10, 1938, with small abscess in the mid portion of the tibia after a latent period of eight years subsequent to staphylococcemia in 1930. Prompt recovery followed intravenous bacteriophage therapy without incision. The normal left leg is shown at the right of the two views of the right leg.



Fig 2 Roentgenogram of the left hip of A M on March 22, 1939, showing a small abscess in the femoral head at the epiphyseal line, subsequent to staphylococcemia in 1934. The treatment by rest in bed, moderate traction and vigorous intravenous use of staphylococcus bacteriophage was followed by complete restoration to normal function.

incision and there has been no further recurrence of the disease.

A. M., a boy born June 23, 1924, who had survived a staphylococcemia treated with bacteriophage in 1934, developed pain and swelling within the joint capsule of the left hip about February 1, 1939. A roentgenogram (Fig 2) revealed a lesion in the epiphyseal line at the femoral neck within the joint capsule. Rest in bed with moderate traction and vigorous intravenous use of staphylococcus bacteriophage from March 27 to July 1 was followed by complete restoration to normal without incision. The patient walks without a sign of a limp. He is still under observation and has recurrent activity of his disease in other locations from time to time, usually not serious enough to confine him to the house.

We⁴ have recently assembled for publication a series of 500 cases of staphylococcemia accessioned to our bacteriophage files in the ten years of 1931 to 1940. The recovery rate was 34 per cent. In this large group there were numerous examples of localizations of the infection of special interest. There were more than 50 of these in which there was obstruction of venous flow through the cavernous sinuses, a condition commonly diagnosed clinically as cavernous sinus thrombosis. In addition, there were several other patients with clinical evidence of obstruction of the cavernous sinus and staphylococcic infection of the face for whom convincing positive blood cultures were lacking. Hence, these patients were excluded from the staphylococcemia series but may quite properly be included in the group of septic staphylococcic obstruction of the cavernous sinuses. In this group of approximately 60 patients there have been 16 survivals, 13 of them with blood cultures positive for *Staphylococcus aureus* and 3 without positive blood culture. Cavernous sinus thrombosis associated with staphylococcic infection is a highly fatal disease. These recoveries are therefore of peculiar interest. A few of them will be briefly described.

Case Reports

A. P. was admitted to Morrisania City Hospital on September 7, 1934, with temperature 104 F and pain and swelling about the left eye of five days' duration. There had been a furuncle on the tip of the nose about August 17. On admission there was proptosis of the left eye, with edema of lids and of bulbar conjunctiva, partial aphasia, and signs of early pneumonia. Thrombosis of the angular vein was followed by generalized invasion of the blood stream, periorbital abscess, extensive osteomyelitis of the frontal bone, abscess of the temporosphenoidal lobe of

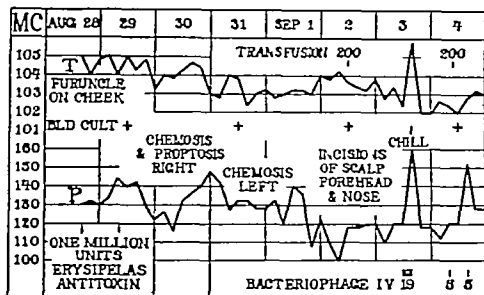


FIG 3a

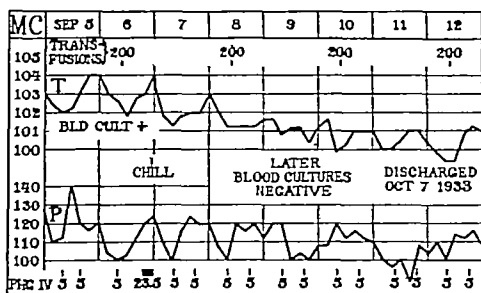


FIG 3b

Figs 3(a) and 3(b) Abbreviated clinical record of M C, girl, aged 8, with furuncle on cheek, clinical signs of septic obstruction of the cavernous sinuses and five blood cultures positive for *Staphylococcus aureus*. A series of intravenous injections of *Staphylococcus bacteriophage* to a total of 19 cc on September 3 was followed by a Hugh Young reaction, and with continuation of the bacteriophage therapy the patient recovered. After discharge from the hospital she developed a metastatic lesion in the right hip which required renewal of the treatment for a long period but eventually healed.

the cerebrum, and complete recovery following a series of surgical procedures aided by the use of bacteriophage locally and intravenously. This case has been reported by Smith,⁶ the attending surgeon who has recognized that a hopeless situation was here transformed by use of the bacteriophage.

M C, a girl aged 8, was admitted to the hospital on August 28, 1933, with a diagnosis of erysipelas of the face, forehead, and scalp. There was a furuncle on her cheek. Large doses of erysipelas antitoxin were given on August 28 and 29, without effect. A blood culture taken on August 29 yielded a heavy growth of *Staph aureus*, first reported on August 31. Subsequent blood cultures taken on August 31 and September 2, 4, and 6 were all positive. On August 30 there was marked edema of the right eye, and on the next day this had extended to the left eye. On September 2 incisions were made in the scalp, forehead, and nose. Exudate from all these sites yielded growth of *Staph aureus*. At a consultation on this day enucleation of the right eye was discussed, but this action was deferred. On September 3 *Staphylococcus bacteriophage* was given in a series of intravenous injections to a total of 19 cc, followed by a shock reaction and a temperature rise to 105.8 F, and prompt fall to 102 F. The phage injections were continued, morning and evening, and on September 6 another series of doses to a total of 23.5 cc was followed by chill and temperature rise to 104 F. The smaller injections of phage were then continued until September 27. The patient was discharged in good condition on October 7. However, as so often happens when bacteriophage therapy is discontinued too soon, there was a recurrence of active infection in the form of metastatic osteomyelitis and arthritis of the right hip, for which she was admitted to another hospital on October 24, 1933. The swollen hip opened spontaneously, and from it a culture of *Staphylococcus*

FIG 4a

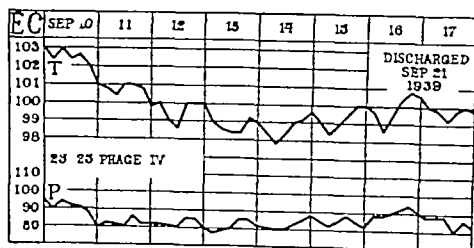
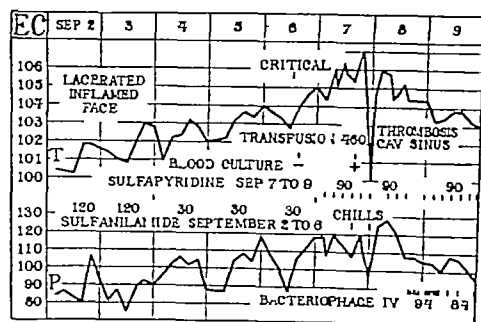


FIG 4b

Figs. 4(a) and 4(b) Abbreviated clinical record of E C, woman, aged 55, with lacerated furuncle of the right cheek. A blood culture taken September 7 gave positive growth of *Staphylococcus albus* and a clinical diagnosis of thrombosis of the cavernous sinus was made on September 8. The transfusion on September 7 was followed by a sharp reaction. *Staphylococcus bacteriophage* was injected intravenously in series to a total of 94 cc during the night of September 8 and further injections were given on September 9 and 10. There was prompt improvement and eventual recovery.

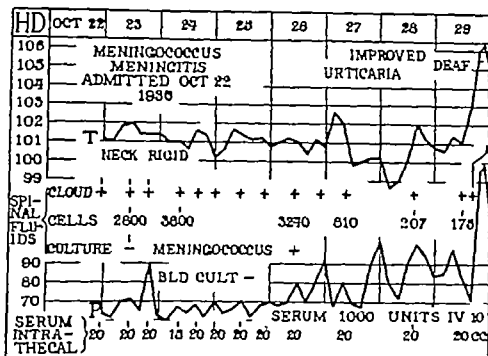


FIG 5a.

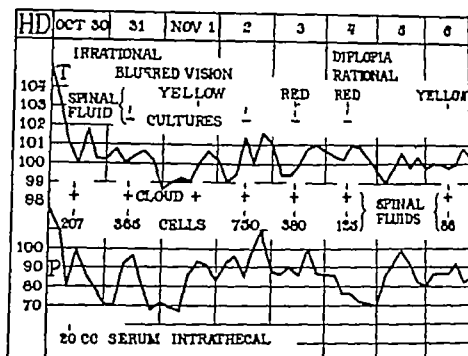


Fig 5b

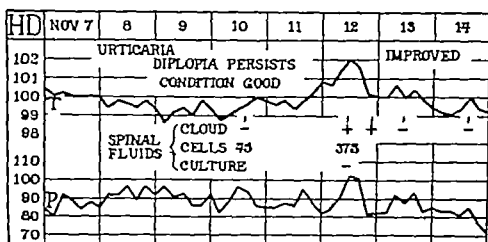


Fig 5c

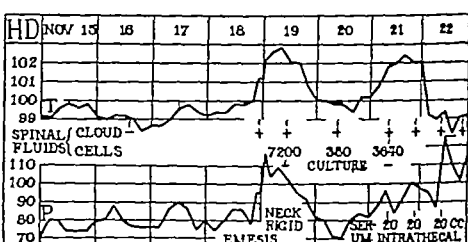


Fig 5d

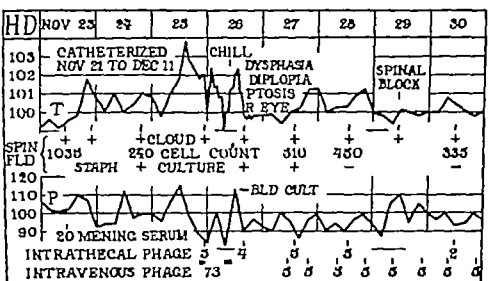


Fig 5e

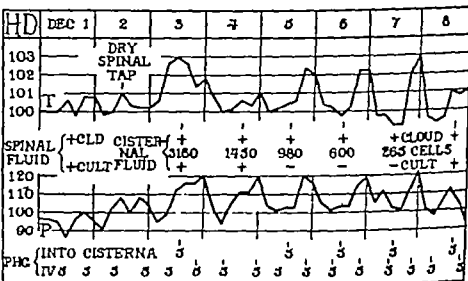


Fig 5f

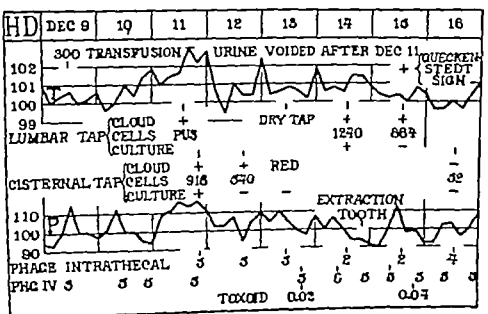


FIG 5g

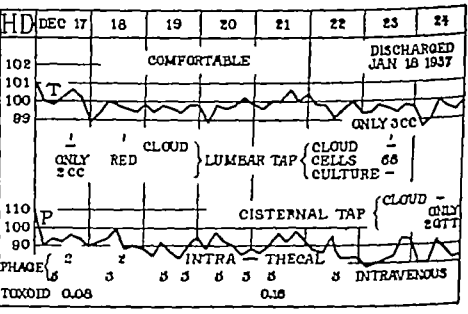


Fig 5h

FIGS 5(a), 5(b), 5(c), 5(d), 5(e), 5(f), 5(g), and 5(h) Abbreviated clinical record of H. D., boy, aged 19. While convalescing from meningococcic meningitis, this boy developed a staphylococcic infection of the meninges, first recognized as such on November 25. After vigorous use of staphylococcus bacteriophage by injection intravenously into the spinal canal and into the cisterna magna, the patient made a complete recovery and has remained free from reactivity of the infection.

was obtained. Blood cultures remained negative. Local and intravenous bacteriophage therapy was again instituted. She was discharged from the hospital on March 1, 1934, and reported in perfect condition on April 25, 1934, and again on June 4, 1934.

In this patient the evidence of infection of the blood stream is convincing, and the clinical signs of obstruction of the cavernous sinuses are quite definite. The postmortem evidence of thrombosis is lacking. The abbreviated clinical record is shown in Fig 3.

E. C., a woman aged 55, observed a small furuncle on her right cheek about August 28, 1939. Wet dressings were applied. On August 31 her physician prescribed sulfanilamide and local hot compresses. She accidentally fell on September 1 and suffered lacerations of her forehead and left infraorbital region. She was admitted to the hospital in the evening with temperature 100.6 F. There was an indurated area extending from the bridge of the nose 5 cm. to the right, and in this there was a small incision. The sulfanilamide was continued, 120 grains daily on September 2 and 3 and 30 grains daily on September 4, 5, and 6. Then sulapyridine, 90 grains per day, was given on September 7, 8, and 9. At 5:00 P.M. on September 7, a blood culture was taken and a transfusion of 460 cc given. There was a rather sharp reaction following the transfusion, and on the next day the blood culture had developed a growth of staphylococcus, subsequently identified as *Staph. albus*, completely susceptible to bacteriophage. On September 8 a diagnosis of cavernous sinus thrombosis was made. Bacteriophage was given in a series of intravenous doses from 6:30 P.M. September 8 to 7:30 A.M. September 9, to a total of 98 cc., without reaction. Further intravenous injections were given, 14 cc. at 11:30 A.M., 20 cc. at 4:00 P.M., 25 cc. at 8:00 P.M., 25 cc. at midnight, 25 cc. at 9:00 A.M. September 10, and 25 cc. at 4:30 P.M. on this day. Her abbreviated clinical record is shown in Fig 4. In view of the course of the disease after bacteriophage was started and the eventual recovery, the diagnosis of cavernous sinus thrombosis may be thought to have been premature but, nevertheless, fortunate. We are not informed concerning the detailed observations leading to this diagnosis.

Generalized leptomeningitis due to staphylococci is another disease of high mortality, so that any recovery may be considered remarkable. There are several of these in our series. Space will permit the presentation of only 1 case.

Case Report

H. D., a boy aged 19, was treated by Dr O'Connor and Dr Connolly at St. Elizabeth's Hospital, New York City, with Dr Josephine Neal in consultation. We are indebted to these physicians for the clinical record, which is shown

in abbreviated form in Fig 5. The boy suffered from a meningococcal meningitis, which responded to treatment with meningococcus serum. There was a serum shock on October 29 following an intravenous injection of 10,000 units of the serum. About November 17, when the patient seemed well on the road to recovery, there was a renewal of fever, and on November 18 reactivation of the inflammation of the meninges was distinctly evident. This relapse was recognized as due to a secondary infection with staphylococcus on November 25, and upon recommendation of Dr Neal the staphylococcus bacteriophage was administered, 5 cc into the spinal canal and 73 cc intravenously in a series of injections from 7:00 P.M. November 25 to 10:30 A.M. November 26. Spinal block soon developed to interfere with the intraspinal therapy, but this complication was met by employing cisternal puncture as indicated in the chart. Subcutaneous injections of toxoid were also given on December 13, 15, 17, and 21. The patient made a complete recovery and was discharged on January 18, 1937. He has reported from time to time and has remained free from recurrence. The favorable result may reasonably be credited in part to the bacteriophage but in a large measure also to the diligence, clinical wisdom, and skill with which it was employed in a difficult situation.

Summary

1 Bacteriophages are filterable agents belonging in the virus group, capable of attacking, altering, or destroying particular bacterial species under certain conditions.

2 In the interior of the body their action is somewhat limited and in staphylococcal infections appears to result chiefly in rendering the bacteria more readily susceptible to phagocytosis and intracellular digestion.

3 Bacteriophages for intravenous use require special care in their preparation, and their administration to the patient also requires knowledge, skill, and diligence.

4 By the skillful use of bacteriophages, low-grade infections often are rendered trivial, acute infections may be aborted, deep-seated lesions may heal without drainage, and desperate conditions may be caused to heal in a surprising manner.

5 Continued use of staphylococcus bacteriophage tends to forestall and prevent relapse after staphylococcemia and other staphylococcal infections.

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Discussion

Dr Joseph Felsen, *New York City*—I have followed Dr MacNeal's work on the therapeutic application of bacteriophage with considerable interest for many years. The brilliant results reported by Dr MacNeal in cases of bacteremia are not paralleled, however, in bacillary dysentery. Following d'Herelle's original report, a number of investigators administered bacteriophage to patients with acute bacillary dysentery under carefully controlled conditions. The majority were unable to substantiate the usefulness of bacteriophage in this disease. Our experience in the Jersey City epidemic of atypical Flexner dysentery in 1934 in a limited number of cases, including controls, was quite similar. Indeed, the control cases appeared to recover somewhat sooner than the bacteriophage treated cases. It is quite possible that differences in therapeutic efficiency may be due to variations in potency rather than to strain specificity. Generally speaking, most dysentery bacteriophages are group-specific rather than type-specific. In this connection we have found bacteriophage useful as a confirmatory diagnostic laboratory procedure in cases of acute and chronic bacillary dysentery in which the specific dysentery organism could not be recovered. Feemster is a firm advocate of this procedure, and we have often found it helpful in chronic distal ileitis and chronic ulcerative colitis following an initial attack of acute bacillary dysentery.

Dr Ward J. MacNeal, *New York City (concluding remarks)*—Bacteriophage active against pneumococcus has been reported in the literature, but we have not had a potent pneumococcus phage in our possession. Various bacteria may undergo autolysis or may be readily dissolved in certain mediums. The solution of the meningococcus and of the gonococcus is apparently due to enzymes that are essential constituents of these bacteria. Undoubtedly, there are many agents that take part in the solution of bacteria.

Stock bacteriophage is kept ready for immediate use. The specific bacteriophage can be prepared only after the culture of the microbe from the particular patient has been made available for its preparation. On that account we

request that such culture be sent to us at the earliest possible moment. We send out the stock phage and proceed without delay in the attempt to prepare a specific phage. This work may require several days. As soon as it is ready the specific phage is substituted for the stock phage previously employed.

For many years we have used chemotherapeutic agents in conjunction with the bacteriophages, and in the report before the Section on Pathology and Clinical Pathology in 1938 we mentioned the use of nearsphenamine. Of the sulfonamides, the sulfathiazole and sulfapyridine appear to exert an effect upon staphylococci. We have used them in conjunction with the bacteriophage. Sulfathiazole appears to be extremely helpful in control of the earlier stages of severe staphylococcemia, but we have found it less useful in treating metastatic localizations. Therefore, we recommend using sulfathiazole and bacteriophage for the first two weeks, then we discontinue the sulfathiazole and continue the phage, even for many months after apparent recovery.

Hemolytic streptococci are usually resistant to the bacteriophages in our collection. In about 1 case out of 20 we succeed in obtaining a potent phage for organisms of this type, and in such cases the phage has seemed to be of help. Of course, infections with the hemolytic streptococci usually respond to the proper use of sulfanilamide.

Dysentery phages have been used with success by D'Herelle and his associates, particularly in the more malignant types of Shiga dysentery. Our own experience has been limited. In our series there have been no deaths.

Untoward reactions to bacteriophage therapy are lacking. The therapeutic shock, which we have designated as the Hugh Young reaction and which is intentionally induced at the proper time, consists of chill, temperature rise, diaphoresis, temperature fall, and immediate improvement. The chill and the fever may be frightful to the uninitiated. The therapeutic use of bacteriophage requires skill and attention.

The expense should not be a bar to the use of bacteriophage. Telegraph, telephone, air mail, and air express services cost money. The charge for the bacteriophage itself is adjusted in our laboratory in accordance with the recommendation of the attending physician who requests it.

HITLER'S MEDICAL RECORD

To the Editor of the *New York Times*

John Cudahy, in today's description of his interview at Berchtesgaden, unwittingly gives renewed currency to the falsehood that Hitler was blinded by gas in the last war. This statement has been merely part of the stage build-up of the Leader.

In 1935 I was told by one of the greatest medical men in the Reich that in 1932 he had himself

investigated Hitler's official medical war record. It consisted of one hospital admission. Diagnosis "hysterical amblyopia," i.e., blindness due to a hysterical fear-reaction. In 1934 my friend found this record no longer existed.

FOSTER KENNEDY, M.D.

New York, June 20, 1941

—*New York Times*, June 24

PREPARATION OF DESICCATED HUMAN PLASMA BY MASS PRODUCTION METHODS

Its Importance in Routine and Military Surgery

J M HILL, M D , Dallas, Texas

DURING the past twenty months the desiccated plasma service of Baylor University Hospital has made concentrated plasma available in any needed quantity and at all times in the same manner as other intravenous fluids. Since its inception as the first routine hospital service of its kind, 660,000 cc of blood have been drawn, the plasma separated and desiccated from the frozen state by the adtec process, and the redissolved plasma administered in concentrated form to over 250 patients in Baylor University Hospital and to an undetermined number of patients outside the hospital.

The advantages of plasma as a blood substitute and even as a therapeutic agent superior to blood in some conditions have been adequately stressed in reports by Levinson and associates,¹ Scudder,² Strumia, Wagner, and Monaghan,³ Elliott, Tatum, and Nessel,⁴ and others. However, serious disadvantages have hampered the use of whole plasma. Contamination has proved to be a problem because liquid plasma is an excellent culture medium. Drew and others⁵ have described the finding of staphylococci, as well as nonpathogens, in stored liquid plasma. Even at relatively low temperatures there may be proliferation of the nonpathogenic soil bacteria, the so-called pyrogens whose proteins are responsible for many of the severe febrile reactions to intravenous fluids. To make things worse, the slow precipitation of fibrin which occurs in all liquid plasma closely simulates bacterial growth and hampers use.

By contrast, properly dried plasma has many advantages that establish its definite superiority for civilian and military use. These advantages may be divided into those directly due to the desiccated state and those due to the concentration that the dry product makes possible. Desiccated plasma has the following advantages:

A Perfect storage characteristics

- 1 Can be kept anywhere for instant availability

- 2 Indefinite preservation of biologic properties
- 3 Does not permit bacterial growth
- 4 No precipitation of fibrin
- 5 No discoloration
- 6 No refrigeration required. Dryness protects from high temperatures

B Reduction in bulk.

C Great reduction in weight

D "Flash" solubility if dried from the frozen state

E Large reserve stores can safely be built up and kept indefinitely for civilian and military emergencies

F Economy—no waste through bacterial growth or other deterioration, reduced cost of transportation and nonrefrigerated storage

The following benefits are obtained when the desiccated plasma is used in the hypertonic or concentrated form:

A Increased therapeutic potency

- 1 Prolonged and powerful hypertonic effects—reduction of increased intracranial pressure, withdrawal of edema fluids, etc
- 2 Stimulation of vascular system in shock.
- 3 Most rapid increase of blood volume in shock.
- 4 Rapid correction of severe hypoproteinemia

B Simplicity and speed of administration with glass syringe. No tubing or complicated apparatus

C Instant availability—can be carried and kept anywhere

Source of Blood

The Baylor Hospital Blood Bank serves as the source of blood. In fact, the bank was actually established largely for this purpose following the successful solution of the problem of volume desiccation. Initially, a considerable amount of plasma was obtained from blood outdated at the tenth day of storage. However, as our volume turnover increased, this source decreased until at present no blood is permitted to become more than four days old before it is used by the plasma service.

Read by invitation at the Annual Meeting of the Medical Society of the State of New York, Buffalo, April 30, 1941.

From the William Buchanan Blood, Plasma and Serum Center, Baylor University College of Medicine.

Another factor in this connection has been the fact that practically everyone pays back blood borrowed from the bank rather than make a deposit in anticipation of a transfusion. Although we have had no bad results from the use of blood up to fourteen days old or from plasma derived from such blood, we agree with Strumia, *et al.*,⁶ that a five-day maximum for storage is desirable in order to minimize the possibility of proliferation of the occasional and inevitable slight contamination of bacteria derived from the skin at the time of venipuncture.

Methods

The blood is drawn and stored in a completely closed system employing a vacuum-sealed bottle containing sodium citrate solution. The venipuncture set has been simplified and consists of a length of good quality tubing with an observation tube and needle at each end. The tube is clamped with a hemostat to hold the vacuum, one needle is plunged through the sterile rubber diaphragm and the other is introduced into the vein. The vacuum is then allowed to draw blood into the bottle, which is given a rotary shaking movement by means of a specially designed motor-driven rotary shaker. With three such bleeding stations we have bled 122 donors in eight hours and separated the plasma the same night under the pressure of an emergency.

Second only in importance to the method of desiccation is the use of the continuous separator of the DeLaval type. This method has long been in use for the preparation of veterinary serums. Although Bushby, Buttle, and Whitby⁷ in England have reported the successful separation of human serum, its use for this purpose has not been reported heretofore in this country.

Twice a week the blood for plasma is removed from the bank, and while it is still cold the blood is pooled in a large stainless metal reservoir and immediately passed through two DeLaval serum separators. The first unit separates the red cells, the plasma passing to the second unit, which acts as a clarifier removing fat droplets and residual red cell fragments. We have slightly modified the bowl covers and spouts to make a practically closed system. This whole process should, of course, be performed in a dust-free room. Nevertheless, with reasonable care, such as keeping doors and windows closed, gowns and caps for operators, and sterile towel or lid over the separator tank, negative cultures of the plasma immediately after separation can

be consistently obtained in an ordinary room. The few chance contaminants that might occur while separating the plasma under ordinary conditions are of absolutely no importance whatever if the plasma is run directly and continuously through a Seitz bacterial filter as described later. This point must be stressed in the practical working out of mass production methods in order to avoid the setting up of unnecessary requirements that would prohibit the very procedures essential to such production.

The rapid pooling of whole blood which we have previously described and had introduced into our routine in January, 1940, is not only necessary for large volume separation but is also desirable for two reasons. First, a completely neutral plasma free of agglutinins is obtained as a result of adsorption of agglutinins on corresponding red cells, second, agglutination of red corpuscles aids in the more complete separation of plasma resulting in a larger plasma yield. A yield of 50.3 per cent of true plasma was obtained upon careful measurement of amounts of blood pooled. Theoretically, the conventional centrifuge should approximate the hematocrit in yield. Actually, complete packing cannot be attained in reasonable time at the speeds available. Strumia, *et al.*,⁶ reported yields of 45 per cent at 2,000 revolutions per minute and a maximum yield of 54.8 per cent when centrifuging for forty-five minutes at 2,500 revolutions per minute in the large International No. 3 machine. However, a separation capacity of only twenty-eight to thirty-two bleedings could be realized in an eight-hour day, totaling 14 to 16 L. if 500 cc amounts were taken. Obviously, only the continuous separation principle has sufficient capacity per unit time for the volume of plasma that would be needed in wartime. For example, the smallest motor-driven separator of the type such as we employ has separated 25 L. of blood in thirty-five minutes. Larger separators of over 1,000 L. per hour capacity are available.

The plasma collects in a stainless metal container from which it is drawn through a sterile rubber tube into the reservoir of a Seitz filter. In a properly balanced system the plasma filters at about the same rate as the separation, thus making a closed continuous process. Any desired amount of plasma may be filtered by choice of a filter of suitable size. The filter disks can be obtained up to 2 feet in diameter. If for any reason part of the separated plasma cannot be filtered shortly after separation, it is sealed in stainless steel con-

tainers and kept frozen until it can be filtered. This technic conforms to our principle of never letting plasma or blood remain in the liquid state once the original vacuum seal of the collecting bottle has been broken.

Since only desiccation from the frozen state results in preservation of biologic properties, "flash" solubility, and indefinitely safe storage, a process utilizing this principle was deemed necessary. As described in an earlier paper,⁸ the adtevac process was worked out in answer to the need for a method of large-scale inexpensive desiccation. This process constitutes one of the four basic methods of dehydration from the frozen state, and its peculiar advantages for mass production are due to the utilization of controlled adsorption for the removal of water vapor under vacuum.

In actual large-scale use the process has proved to be economical and efficient. By this method the amount of plasma to be dried is limited only by the amount of adsorbent used and, since adsorbents such as silica gel have an indefinite life when properly handled, it is practical and economical to employ whatever amount the desired capacity requires.

Plasma may be dried in ampules, trays, or other containers according to the volume to be processed. In our hospital plasma service large pyrex ampules, containing up to 700 cc of plasma, have been used satisfactorily. Moisture analyses of the material dried for forty-eight hours show residual water to be as low as 0.03 per cent. Equally, dry plasma could be obtained in shorter periods if smaller amounts were placed in the ampules. Longer operation with larger loads are preferred to cut down labor required.

One of the most important features of our production methods has been bulk desiccation of plasma. This has reduced the technical problems of operation, such as the elimination of leaks in the system which tend to occur with the great numbers of connections necessary when processing in small original containers, but, more important, true mass production can be realized. Another great advantage of bulk desiccation is that a much larger quantity of the dry plasma can be placed in a given container. The final container can be practically filled with the granular dry plasma, yet because of its porosity an equal volume of water can easily be added or a vacuum is drawn in the final container and held by an adequately tight method of sealing. When used as a threefold or fourfold concentrate, the volume and weight of both the plasma and sterile water vials are much smaller than the equivalent

amount of whole plasma. A further advantage of the reduced volume is that an average dose may be given with an ordinary syringe. These advantages are particularly valuable for military use where simplicity, speed, and ease of transportation are essential.

Transfer of the dry plasma from the ampules to vaccine type vials is accomplished by a practically closed system using a sterile metal dispenser, a method to be described in another paper. The plasma is granulated, with reduced bulk and increased solubility resulting. A vacuum drawn through a needle is sealed by coating the rubber cap with celloidin.

In our earlier reports^{9,10} we described the preparation and use of four times concentrated plasma. The concentrate was prepared from dry plasma and kept frozen. Since preserving the plasma in dry form, we have standardized on 12.5- and 25-Gm doses to be dissolved in sterile pyrogen-free water and made up to 50 and 100 cc amounts, respectively, giving a solution between three and four times normal in concentration, depending on the figure taken for normal plasma.* These quantities were partly determined by the size of available vials.

Rapid or flash solubility of plasma, obtainable only when desiccated from the frozen state, is desirable as an indication of proper preparation and preservation and as a time-saver. The adtevac plasma, prepared and stored as described, dissolves to form the concentrated solution in an average time of two minutes with vigorous shaking. In some instances solution may be complete in as little as thirty seconds. By always administering the plasma immediately after dissolving, we entirely eliminate any opportunity for bacterial growth at any period from the time of drawing blood, through the processing of the plasma, and right up to the moment of administration. The extremely rapid solubility of adtevac plasma, together with the availability of different size doses, makes it completely unnecessary to keep the plasma in the liquid state, and instructions advise against this. However, it is of interest to note that tests indicate that the hypertonic plasma solution is bacteriostatic to most common contaminants.

* Note. Our four time concentrated plasma containing 25 Gm. of solids is equivalent to four times its volume of whole plasma containing approximately 20 per cent citrate solution. Protein content of the concentrate is from 18 to 20 Gm. per hundred cubic centimeters.

Reactions

The best criterion of the safety of plasma preparation methods is the reaction rate observed in actual clinical use. The most significant type is the febrile reaction. We feel that this manifestation is due to bacterial contamination and growth of some type, either pathogenic or nonpathogenic. In the latter group the pyrogenic bacteria are most important. Hemoglobin in plasma is not the cause of reactions. We have given plasma containing up to 1 per cent hemoglobin without untoward effects. This is to be expected in the light of the work of Ottenberg and Fox,¹¹ and Gilligan, Altschule and Katersky.¹² When using concentrated plasma stored in the frozen state, a reaction rate of 1 003 per cent was reported.¹⁰ Since our plasma has been stored dry as described above, no febrile reactions have been encountered in over 386 administrations. A few transient manifestations of other types were occasionally seen, such as urticaria, mild lumbar pain of brief duration, and slight pain over the vein during rapid administration. None of these phenomena were of clinical significance, all passed off quickly, with only mild complaints being registered and with no harmful effects resulting. The danger of vein thrombosis from concentrated plasma, as suggested by Brown and Mollison,¹³ has never been encountered in our series. The stimulating effect of hypertonic plasma on smooth muscle was seen in a few severe cases of shock where plasma administration to unconscious patients was followed by micturition or where stomachs were full by a mild type of regurgitation. These responses also noted by Brown and Mollison,¹³ were not of spasmodic character and in no case harmful to the patient.

Technical difficulties, such as sticking of syringe, excessive viscosity, etc., have not been encountered. Syringes stick only when a plasma of poor solubility is used. We have routinely employed a 50-cc syringe and 19-gauge needle without difficulty.

Clinical Uses

From the first we have advocated administration of the plasma in concentrated form in order to take advantage of the reduced bulk, as well as realizing therapeutic properties of the hypertonic solution. In some cases where the plasma was given as an intravenous protein food, it was simply added to other intravenous solutions.

For military use the advantages of desiccation and concentration take on new impor-

tance. If plasma can be given as far forward as the collecting station, as suggested by Kendrick,¹⁴ the factors of reduced bulk and perfect preservation under all conditions, together with the simplicity, speed, and effectiveness of administration of the concentrated form, should make this type of plasma therapy the treatment of choice in combating shock. For naval use the same characteristics are of utmost value because of restricted space, lengthy storage under all conditions, and the need for elimination of complicated systems employing carefully prepared tubing.

The effectiveness of concentrated plasma in shock therapy as observed in 45 closely studied cases was reported in another paper.¹⁰ Since most of those cases were associated with operations and possible hemorrhage, additional cases were studied in which other factors were primarily involved. Two cases herein reported illustrate the typical response to hypertonic plasma. Representing traumatic and neurogenic shock, these cases are of a type frequently encountered in warfare. Case 1 is illustrated graphically in Fig 1, Case 2 in Fig 2.

Case Reports

Case 1—A. M., a white man, aged 53, was admitted nine hours after an automobile accident. An examination showed the patient to be cold, perspiring profusely, pale with weak rapid pulse, and somewhat confused mentally. His left leg was in a splint, applied for comminuted fracture of the lower end of the femur. The right femur showed an intertrochanteric fracture. The blood pressure was 75 systolic and 64 diastolic, with pulse 130 and weak. The hemoglobin was 13.25 Gm. One hundred cubic centimeters of 4X adevac plasma was given intravenously. In six minutes the sweating had ceased, the blood pressure was 96 systolic and 70 diastolic, and the pulse was strong, with a rate of 120. Hemoglobin at 11.75 Gm. showed the blood volume to be increased. Thirty minutes later another identical dose of hypertonic plasma was given, with the blood pressure rising to 100 systolic and 70 diastolic and the hemoglobin falling to 11.1 Gm. The blood pressure varied somewhat, remaining above the critical level, and at the end of twenty hours fell to 86 systolic, 64 diastolic, the hemoglobin was 13.75 Gm. One hundred cubic centimeters of 4X plasma elevated the blood pressure up to 116 systolic and 72 diastolic, and the increased blood volume was reflected in a hemoglobin of 8.5 Gm. No further drop in blood pressure was observed, and a transfusion of 500 cc of blood was given two hours after the last plasma. No further evidence of shock was observed and the patient recovered.

Case 2—S. S., a white woman, was admitted with gunshot wounds of the right and left

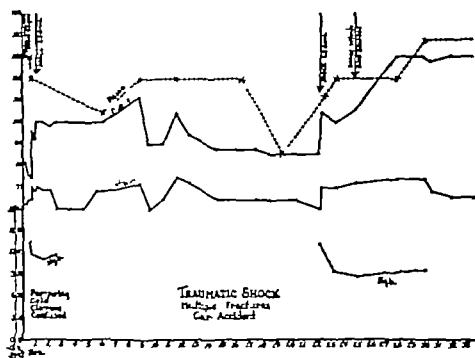


FIG 1

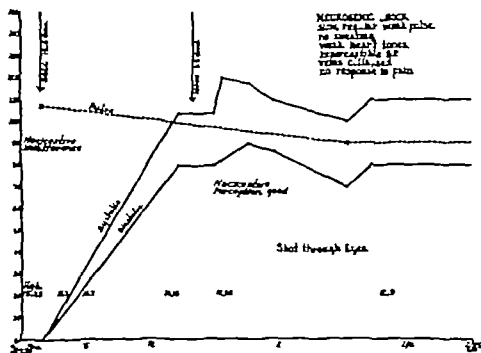


FIG 2

temporal and mandibular regions. Both eyes were markedly damaged. The patient was pale, could not be aroused, and did not respond to verbal or pain stimuli. Her veins were partly collapsed, her pulse was slow and weak, with slow respiration and no sweating. Her blood pressure was imperceptible, the hemoglobin was 15.5 Gm. Fifty cubic centimeters of 4X adtevac plasma was given by vein with a rise in blood pressure up to 104 systolic and 80 diastolic in thirty minutes. Response to pain was noted. The hemoglobin was 14.5 Gm. One hundred cubic centimeters of 4X plasma was then administered. In fifteen minutes the patient was asking for water and responding to pain. Her blood pressure was 118 systolic and 90 diastolic, and hemoglobin, 12.9 Gm. The patient was discharged six days later.

These cases show the same rapid favorable response to hypertonic plasma which was observed in our earlier series, and they indicate the availability and adequacy of interstitial body water to build up blood volume when the osmotic pressure of the blood is increased by the addition of concentrated plasma protein. The significant changes in the photoelectric hemoglobin determinations demonstrate the rapidity with which these blood volume changes occur. These cases also further support our thesis that the administration of concentrated rather than whole plasma is the treatment of choice in shock. The hemoconcentration that results in nonhemorrhagic forms of shock as a result of loss of fluid into tissue spaces is reversed to a large degree. Furthermore, direct stimulation of the vascular system seems to occur. A more rapid, as well as more physiologic, correction is thus approached. In such situations plasma is not a substitute but really a superior therapeutic weapon.

In burns, capillary damage is so extensive that little fluid can be withdrawn from dam-

aged areas where large amounts of fluid and protein are fixed. However, desiccated plasma has a definite place—first, in order to store safely the large reserves needed for burns and, second, in order to use concentrated plasma in certain phases. The first point is of utmost importance in civilian, as well as military, practice. The enormous amounts needed in a few severe burn cases may deplete plasma supplies, and cases may be lost while more is being prepared. We have used plasma equivalent to over 10 L of normal plasma in 1 extreme case. Hypertonic plasma also has a place for its instant availability and its initial rapid action where we have obtained excellent temporary results until provision for continuous administration of normal plasma could be set up. Such considerations might be of vital importance under air-raid conditions with numerous casualties. Finally, it has proved beneficial to be able to supplement the administration of normal plasma with occasional doses of the concentrate where hemoconcentration was remaining dangerously high and also to use the hypertonic form where the previous use of saline resulted in general edema, pulmonary edema, etc.

In the treatment of posthemorrhagic shock hypertonic plasma is of definite value as a direct therapeutic agent and not merely a blood substitute. In this respect there is clinical and experimental evidence of three possible roles

First, plasma alone may suffice even for relatively severe grades of shock where red cell volume has not reached a fatally critical level if adequate circulation can be restored to prevent anoxia. Here the hypertonic plasma, rapidly given, combats shock by immediate increase of blood volume and apparent contraction of vascular capacity, thus making red cell function more effective through accelerated circulation.

Second, where red cell loss has reached the critical level mentioned above, plasma is still of great value when blood is not immediately available. The patient often can be kept alive until blood for transfusion can be obtained. In our experience this period in severe hemorrhage may be extended as long as one or more hours.

Third, even when adequate stores of blood are immediately available, hypertonic plasma should also be given, since circulation can be restored in this manner before the more slowly given blood can take effect. This combination is much more effective than blood alone. For example, in 1 case of ours where blood, given through three portals, was failing, the addition of hypertonic plasma reversed the unfavorable trend.

Conclusions

1 The methods employed in the desiccated plasma service of Baylor University Hospital are reported.

2 The experience gained from the preparation and use of desiccated plasma derived from 660,000 cc of blood during a twenty-month period of routine operation is discussed.

3 The complete safety of mass-production methods, including continuous separation of blood and bulk desiccation, is demonstrated in the freedom from febrile reactions and in the clinical results obtained.

4 The significance of these methods and results in military surgery is pointed out.

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Discussion

Dr Paul W Searles, *Buffalo, New York*—The greatest disadvantages in the use of desiccated plasma has been in its preparation. The methods have been too cumbersome for the average-sized blood bank. However, Dr Hill has shown that it is possible for the average bank to produce a desiccated plasma.

The therapeutic value of plasma has been well proved. Certainly, where shock is not due to the loss of red blood cells plasma is indicated. There is also some evidence that plasma can be used in hemorrhage cases to carry the patient along until red cells are available.

It is quite a simple matter for the average bank to obtain whole plasma from blood. This whole plasma can be stored in bottles for a long time. I have used whole plasma in combating shock, however, concentrated plasma is interesting and deserves a fair trial.

The military value of the desiccated plasma cannot be overestimated. The simplicity of administering the plasma by syringe in the concentrated form is a definite advantage. There is the problem of transporting the sterile distilled water along with the desiccated plasma, which in the end means there is just as much bulk as in ordinary whole plasma. However, I do know that the use of desiccated plasma has been favorably considered by military authorities and will probably be adopted by them as their emergency method for treating shock.

The plasma prepared by Dr Hill's method has a slight reddish tinge. I understand that he attaches no importance to the traces of hemoglobin that may have been faced on centrifuging. As yet he has had no severe reactions because of this factor.

I was interested in the preservation of certain biologic properties that occur in the use of dried plasma. Ordinarily, we give freshly drawn blood or plasma to patients with severe infections.

Is it possible to preserve the immunity for any length of time in desiccated plasma?

INTERNATIONAL COLLEGE OF SURGEONS TO MEET IN MEXICO CITY

Pan-American unity in surgery as well as in hemispheric defense will be dramatically demonstrated when the International College of Surgeons holds its fourth international assembly in Mexico City, August 10 to 14.

Surgeons from most of the countries of the Western hemisphere and also England, Holland, Palestine, Portugal, Switzerland, and Turkey

will participate. Many Pan-American countries are sending official representatives. Sessions will be conducted in both English and Spanish.

Especially emphasized will be military surgery and the lessons already learned from the Spanish Civil War, current British campaigns, and civilian experiences during air raids. Headquarters will be at the Hotel Reforma.

DEAFNESS IN CHILDREN

Early Detection, Management, and Treatment

EDMUND PRINCE FOWLER, M D , New York City

"SPEECH deafness" no matter what its degree has an effect upon the acquisition of language, education, employment, and emotional adjustment to the environment

In comparison to the extent to which deafness exists in the population, it is appalling how little is done to prevent it Ten per cent of the men recently applying for enlistment into the regular army were rejected because of noticeable "speech deafness" The testing of 1,200,000 public school children in New York City shows 4 per cent with hearing losses of 9 decibels or more for "speech hearing" This means that it requires about ten times more sound for these children to hear simple speech in a quiet schoolroom than for the normal hearing children and, in the usual noisy schoolroom, over a hundred times more intensity I estimate that one-third of all school children show losses of at least 15 decibels at some frequency Such losses, unless transitory, may mean "speech deafness" is to follow

The beginning of deafness is usually in youth, and it increases in severity with certain variations with age The old people who have no deafness for speech are those who escaped ear disorders in youth Deafness is almost the rule in professional swimmers and prize fighters and is inevitable under certain noise conditions such as long-continued exposure to open cockpit fighting planes, boiler factories, gun explosions, etc Deafness is common in people with an idiosyncrasy to certain drugs, especially quinine, salicylates nicotine, etc

It is a mistake to imagine that just because an ear is slightly or even markedly deaf it is protected from noise Even severe nerve deafness does not offer protection from excessive noise In fact it increases the liability of damage from acoustic shock because the nerve elements are already damaged and are less resistant to trauma, and sound vibrations enter these ears just as readily as they enter normal ears

Man is especially exposed to acoustic shocks, and this is one reason why boys and men show,

on the average, a greater loss in the high tones than the girls and women and a more extensive nerve deafness later in life Boys love firecrackers and cannons and to bat one another over the head They are fond of shooting One really bad acoustic shock may, and frequently does, rip some delicate structure in the middle or inner ear and cause hemorrhagic, exudative, or productive inflammations Even microscopic hemorrhages in the neural apparatus of hearing may cause extensive degeneration and deafness Deafness may follow concussion, without other neurologic signs.

Many diseases of childhood are associated with ear disease and disabling deafness, largely because of infections of the upper part of the respiratory tract The same bacterial irritant may produce different forms of inflammation, and the different irritants may produce the same anatomic forms of inflammation Little or nothing is known about deafness from the viral diseases

What should be done to protect the ear from the effects of the diseases and traumas of childhood? What should be done in the presence of deafness to conserve the residual hearing? Only a broad answer can be given here because the subject is too extensive I should say that the outstanding preventive measure is intelligent observation and testing Careful observation is in itself the acme of testing

When is it necessary to test the hearing, to find out if a child has any deafness, to determine whether he is merely hard of hearing or totally deaf? When is it necessary to undertake remedial or preventive measures or to consult an otologist? The primary responsibility for the correct answers to these questions rests upon the pediatrician The parents rely first on his advice

(1) Examine the newborn babies' external auditory meatuses for obstructions, congestions, secretion, pus, and blood If there is a history of congenital deafness in the family or if the gestation or birth has been abnormal, test every few weeks with simple noises Some advise waiting ten days or two weeks after birth before testing to allow time for the resorption of the gelatinous fetal pads and vascular tumefactions from the middle ears,

Read before the Section on Pediatrics of The New York Academy of Medicine January 9 1941 including a demonstration by children from the New York League for the Hard of Hearing

out because these do not cause total deafness delay is questionable on these grounds. At an early age it is difficult to set up definite tests and it is impossible to obtain quantitative results, but after five months (sometimes earlier) one may gradually condition the baby to respond to certain sounds, such as a bell or simple call words associated with something that makes for baby's gratifications—feeding or the desire for a toy, especially a toy that makes a noise. When the baby enjoys making the noise it is a sign that he is hearing it.

Some babies only a few weeks old will try to avoid a loud sound near the ear by moving the head. If this movement is consistently repeated, it is an excellent sign that the sounds at the intensities used have been heard. Use a tuning fork, bell, buzzer, etc. Be careful not to traumatize the ear by using sounds over 90 decibels above the normal threshold. The shouted voice two feet from the ear averages 80 to 100 decibels. If 80 decibels is not heard, "speech hearing" is usually lost. This means the child will be unable to acquire speech in the usual way.

Some babies will blink the eyelids or show a definite pupil reaction when, unexpectedly, they hear a fairly loud sound, such as loudly clapping the hands together. If these reactions are definitely and consistently obtainable without some other coincidentally acting stimulant confusing the picture, they may be accepted as a sign that the baby hears the sound used. Avoid using sound vibrations that can be felt instead of heard. When certain that any loud sound is heard, use fainter and fainter sounds to estimate roughly the degree of hearing. If unable to obtain pupillary or palpebral reflexes by sound alone, flash a small light before the baby's eyes simultaneously with the application of the sound. The eyes will blink to shut out the light. Repeat again and again until even when the light is not flashed the reflex will occur in anticipation of the light. The reflex is then a positive proof that the sound was heard. This is one conditioning procedure. Many others will suggest themselves to you.

Frequently, positive reactions may be elicited by applying a 512 or 256 vibrating tuning fork to the baby's skull. Notice if there is any difference in the reactions obtained when this is done and when a dead tuning fork is applied to the same spot. Often, if a baby is crying, he will stop crying abruptly on hearing the sound of a tuning fork before the ear or on the skull. His attention is concentrated on the new sensation. The lower

forks may be felt as well as heard, so that it is well to use the 512, which gives less surface sensation than the lower forks.

Babies who hear their own voices or even their own gurgling or bubbling and other simple sounds appear to enjoy their noises and, from time to time, will experiment by varying the pitch of the noises they are making. If a baby is backward in doing this or, when older, in imitating and in using simple sounds, the hearing in both ears may be at fault. To make sure, test it. Obviously, monaural deafness will not prevent the child from hearing himself.

Notice if the child always uses gestures to communicate with others. Older deaf and hard-of-hearing children do this whether or not they use vocal expressions. They seem to sense their vocal inadequacy. They think and signal in meaning rather than in words. A positive reaction to several of the tests described above will assure the presence of some hearing. How much, can be determined later. Place the source of the sound so that the child cannot see its manipulation.

Some day it may be practical to observe the acoustic reflex of the intratympanic muscles which occurs only with the hearing of sounds at least 40 decibels over threshold. We will then have a quantitative hearing test for even the youngest children.

(2) Keep in mind that potential deafness is hidden in most diseases of childhood and inspect ears, nose, and throat daily during their course. At the first sign of ear involvement, institute the indicated medical or surgical treatment and maintain it not only while the child is sick but also until the threat of deafness is removed. Keep in mind not only the cure of disease of the ear and of the body but also the preservation of the hearing.

The first noticed sign of ear disorder instead of a lowering of hearing may be stuffiness, head noises (tinnitus), vertigo, nausea or vomiting, or neurologic signs of meningeal irritation. Up to about 8 or 10 years of age, deafness is apt to be noticed only when bilateral.

In children, as well as in adults, head noises mean irritation and threaten destruction of the cochlea nerve apparatus.

(3) The hearing of every child should be carefully tested audiometrically on entering school and immediately following the diseases of childhood—also at six- to twelve-month intervals if teacher or parents suspect any hearing defect.

(4) Be sure that throughout childhood the

eustachian tubes are functioning physiologically. This is determined by otoscopic observations of the details of position and movability of the drum and other tympanic structures, not by forcible inflations of the middle ear, by air bag, or by catheter. Both politzerization and catheterization are much abused in youth and in later age. The catheter is practically never indicated in infancy or childhood.

If the ventilation of the middle ear is subnormal, some hearing will always be lost. The frequency regions primarily affected are the low-tone and the high-tone areas (64 to 512 and 4,000 to 16,000)¹. Which frequency is the more affected depends upon the amount and duration of the partial vacuum and the lesions in the middle ear and adjacent spaces. Every child should have a careful test to determine his normal hearing level even though there is no deafness. If in a previously tested ear no lowering of the hearing occurs at any frequency, the tube is functioning and inflations are usually contraindicated. A common symptom of eustachian tube dysfunction is ringing, clicking, or fullness in the ear. This is prone to recur with every cold. In the interim the hearing may appear normal.

(5) When necessary, and only when necessary, maintain ventilation of the middle ears by gentle air pressures (without traumatizing the tissues), and do not expect inflations at weekly or even daily intervals to maintain adequate ventilation or drainage until after the subsidence of the middle-ear and tubal blockage. Supplemental home treatment is needed in almost every instance to shorten the acute and subacute periods and to forestall a chronic aftermath—such as recurrent or chronic suppurative mucoid, or productive cicatricial otitis, and permanent deafness. The deafness may be missed unless the hearing is tested carefully.

I use hot saline ear douches before rupture or incision of the drum and, usually, gentle intermittent suction and a mild hot antiseptic douche during the resolution of the suppuration. I do not favor incision of the drum membrane unless it is seen that the eustachian tube is not sufficiently patent to permit the middle ear to free itself of secretion within a few days or unless the inflammation becomes purulent, causes prolonged pain, or threatens complications. I do not favor repeated drum incisions. If one, or at the most two, good incisions do not furnish sufficient drainage to control extension of the suppuration, the exudate is coming from spaces outside of the middle ear,

in the mastoid or petrous bone or eustachian tube, in which case a simple mastoidectomy is often indicated irrespective of the bacterial content of the pus. Simple mastoidectomy, unless delayed beyond the point where full recovery of middle-ear function can take place, is a surgical procedure that can be counted upon to restore and preserve the hearing to a greater degree than any other later treatment or operation. I am not impressed with the reported preventive action of sulfanilamide or other chemotherapy in uncomplicated acute or chronic otitis media, because we can show quite as good results without its use as with it. Sulfanilamide may be of distinct benefit locally if efficient drainage is established.

During recovery from all middle-ear and mastoid suppurations, the eustachian tubes and middle ears should be closely watched to insure timely treatment in case of their failure to function physiologically. Frequent careful testing of the hearing is a sensitive guide to these ends. It is quite commonly neglected. Instead the patient's word is accepted, and patients are easily misled as to changes in hearing.

In some instances the middle ear recovers and the hearing returns, but the infection becomes localized outside of the ear. Here the inflammation continues, usually as a mastoiditis. In such cases, simple mastoidectomy is indicated with no attempt to enter the middle ear by way of the antrum, aditus, or otherwise.

In little children the nasal sinuses, such as exist, are almost always involved with extensive head colds. The middle ear is one of the sinuses of the nose. The inflammation in the middle ear as well as in some other sinus may persist after the cold subsides—be sure to examine and test to determine whether or not this has occurred.

(6) Examine for, and remove, menacing lymphoid nasopharyngeal hypertrophies, especially those near the eustachian tubes. Do this under inspection, whether by surgery, diathermy, chemical cauterization, or irradiation—not by feeling and guessing. Restraint in the use of all these modalities will prevent overdestruction of mucous membranes and dry, crusty, and gobby chronic throats. It is not the mere presence of adenoids or hypertrophied lymphoid masses that threatens the hearing. It is their particular effects in the case in question. Only careful tests and often more than one examination will determine their true status and the advisability of their removal.

(7) Remove the tonsils if they are continu-

ally or often infected or if after 4 or 5 years of age it seems advisable in connection with adenoidectomy—not just because they are large or contain in their crypts some cheesy matter. Do not do this by blind clipping or burning. Do it by inspection and dissection so that you may be certain of a clean surgical removal of the tonsil, without including the palate, pillars, tongue, or other parts of the throat. The end results of many so-called tonsillectomies are worse than the results of leaving the tonsil *in situ*.

(8) A moderate recurrence of lymphoid tissue requires no treatment unless it takes on recurrent infections or is associated with a recurring hearing loss or nasal infections. The mere recurrence of lymphoid tissue is not *per se* a reason for repeated removal. More restraint is indicated in the removal of lymphoid recurrences than of the original adenoid masses. Every removal is followed by greater scarring of the throat. The persistence of the tendency to replace lymphoid tissue by little children suggests that this replacement may not be wholly useless. It aids in the maintenance of an efficient barrier to the spread of infection. A relative immunity appears to be closely related to this timely hypertrophy of the lymphoid barriers in the upper part of the respiratory tract of the child.

Irradiation of the nasopharynx to control lymphoid blocking of the eustachian tubes is sometimes warranted. It is one way to control lymphoid hypertrophies. It must be used with caution because it is not yet determined what the end results will be and what effect it will have on the healthful functioning of the mucous membranes involved. To avoid a too extensive destruction of tissue and to lessen the cost of using radon or x-ray, my son has devised a radium applicator that concentrates the effect of the irradiation closely to the region of the tube.

(9) Vitamin insufficiencies, even when corrected by natural or synthetic combinations, will not produce a healthy child unless there is sufficient and continued consumption and utilization of healthful food. Many fads and fancies always attend newly acquired remedial agents. The so-called biochemicals, under various names and combinations, now in vogue will in time give way to overemphasis on other and newer discoveries, and so on *ad infinitum*. You and I must use common sense in these matters if we are to best serve our young patients and, incidentally, their parents. The health and strength obtainable from a well-balanced diet of the old reliables throughout

the ages are still obtainable from the same old reliables today—milk, eggs, butter, cheese, whole wheat bread, cereals, meat, liver, leafy vegetables, tubers, oranges, and all the orchard, citrus, and other fruits. These foods obtained and consumed in sufficient bulk and in good environment will still produce healthy children. No synthetics will ever permanently take their place.

(10) Avoid meddlesome surgery and meddlesome medicine. Every patient is a law unto himself. This holds true in childhood as well as in youth and middle and old age. The practitioner knows by experience that even different members of the same family may react differently to similar diseases, they therefore need different management and treatment.

(11) There are several disorders and diseases causing deafness which strike so suddenly or so insidiously that we have been almost helpless to fend off their damage to the ear. I shall briefly discuss the deafness associated with heredity, meningitis, mumps, and syphilis.

Hereditary tendencies to several types of deafness may be shown, but environment in the largest sense is the more important etiologic factor. No immunity is so great that it can resist indefinitely repeated exposures to severe trauma or infection. Hereditary tendencies are ever present and, therefore, the family history may form an important background for all kinds of ear diseases and all types of deafnesses. But to state that a disease is hereditary does not explain its cause.

The neural apparatus of hearing is thought to be more often affected by hereditary influences than the conducting apparatus. This is probably because the neural machine in the cochlea and brain is more easily damaged by the local pressure, anoxia, or toxemia coincident to some diseases than the tougher mechanical apparatus in the middle ear.

One of the most prevalent forms of progressive deafness, beginning but not often discovered in youth, is otosclerosis. It usually shows a familial and hereditary background. A study of identical twins is being made, and it is hoped that it will throw some light on this subject. The cooperation of the pediatricians is desired in this work. If any of you know of twins of any age with otosclerosis or with a parent suffering from otosclerosis or progressive deafness, please arrange to have the children's hearing examined at least yearly. I will gladly contribute my services to this end.

It must be kept in mind that we tend to look and act like our forebears internally as well as externally, especially when the environment has been similar, and that we all, therefore, tend to take on similar ailments under similar provocations. The only immediate practical preventive measure is better environment. This includes better environment for preventing, as well as for throwing off, the disorder—in plain words, better prophylaxis, management, and treatment.

The only measure of service to prevent deafness from meningitis is anticipatory or early diagnosis of the meningitis, with prompt and efficient treatment by the newer methods of chemotherapy which offer much in preventing meningeal involvement of the eighth nerve. The only treatment is preventive because when the acoustic nerve elements are once degenerated or destroyed they never recover. To learn if the destruction is partial or total, careful hearing tests are necessary. To do this, the opposite ear must be excluded by masking, even though it, too, is severely deafened by nerve degeneration. The reason for doing this is because extremely loud sound will appear nearly or quite as loud to even a severely nerve-deafened ear as to a normal hearing ear. This is due to the presence of the "recruitment phenomenon."

A simple method for masking an ear is to blow steadily into the concha and external auditory meatus. Blowing across the open end of a rubber tube, the other end of which is in the ear, is also an efficient way of preventing an opposite ear from hearing the testing sounds. A stethoscope used monaurally is efficient for this purpose and is much less terrifying than the Bárány noise apparatus.

One reason why monaural deafness is not detected early is because the deaf ear is turned toward the sounds one desires to hear less than one-half of the time, and under many conversational conditions, even if the deaf ear is toward the speaker, there is a loss of only 15 to 20 decibels in the sounds reaching the good ear. This causes but little disability unless the good ear is masked by environmental sound or unless its hearing also is deficient. Environmental noise masks conversation more when the masking noise is on the side of the better hearing ear. There is, then, no opposite ear with which to hear.

No one knows how mumps causes deafness unless there is an associated meningitis or meningoencephalitis involving the eighth nerve. In many cases there is no such association, and yet the static, as well as the auditory

labyrinths, of the ear may be affected. The lesions accompanying mumps are usually unilateral, often total but sometimes unequally bilateral. They affect ears that were previously normal, as well as those showing any of the various degrees and types of deafness. A simple voice hearing test will usually suffice for a preliminary estimate of the extent of damage to "speech hearing." For a more accurate estimation, test both ears audiometrically by air and bone conduction. Masking of the opposite ear is usually indicated.

When monaural, the deafness from mumps in all my own cases has been on the side of the greater involvement. I wonder how often it occurs in atypical cases with no parotid involvement.

The only direct communication between the parotid gland and the inner ear is the channel occupied by the facial nerve. The pathway is not long, not much over an inch in all. It is suggested, since perineural inflammatory changes can travel along the course of nerves even greater distances than this, that in mumps this may be one mode of involvement of the inner ear.

Mumps is not primarily a suppurative inflammation—neither is the accompanying eighth nerve neuritis or labyrinthitis. The question arises. If the avenue of infection is the path of the seventh nerve, how does it happen that there is seldom a seventh nerve (facial) paralysis? One reason is that the seventh nerve is tougher than the eighth nerve. The auditory fibers are unmyelinated and are, therefore, more sensitive to poisons, anoxia, and pressure lesions. Pressure lesions in the internal auditory canal commonly irritate or paralyze the cochlea and the vestibular divisions of the eighth nerve without irritating or paralyzing the seventh nerve. The mumps infection being viral is not self-perpetuating like bacterial poisons. Toxic poisoning of the eighth nerve is common, of the seventh nerve, uncommon.

In little children, mumps is thought seldom to involve the ear, but after the age of 12 it does so more often than is realized. The symptoms of involvement, headache, temperature, tinnitus, vertigo, nystagmus, nausea, vomiting, or spastic paralysis in various combinations are often so slight that they are missed. When sudden and severe they are apt to be ascribed to the general bodily reaction to inflammation, to gastrointestinal disease, or to meningitis and not to the auditory or static labyrinth irritation or destruction. Their severity and sequence depend largely

ally or often infected or if after 4 or 5 years of age it seems advisable in connection with adenoidectomy—not just because they are large or contain in their crypts some cheesy matter. Do not do this by blind clipping or burning. Do it by inspection and dissection so that you may be certain of a clean surgical removal of the tonsil, without including the palate, pillars, tongue, or other parts of the throat. The end results of many so-called tonsillectomies are worse than the results of leaving the tonsil *in situ*.

(8) A moderate recurrence of lymphoid tissue requires no treatment unless it takes on recurrent infections or is associated with a recurring hearing loss or nasal infections. The mere recurrence of lymphoid tissue is not *per se* a reason for repeated removal. More restraint is indicated in the removal of lymphoid recurrences than of the original adenoid masses. Every removal is followed by greater scarring of the throat. The persistence of the tendency to replace lymphoid tissue by little children suggests that this replacement may not be wholly useless. It aids in the maintenance of an efficient barrier to the spread of infection. A relative immunity appears to be closely related to this timely hypertrophy of the lymphoid barriers in the upper part of the respiratory tract of the child.

Irradiation of the nasopharynx to control lymphoid blocking of the eustachian tubes is sometimes warranted. It is one way to control lymphoid hypertrophies. It must be used with caution because it is not yet determined what the end results will be and what effect it will have on the healthful functioning of the mucous membranes involved. To avoid a too extensive destruction of tissue and to lessen the cost of using radon or x-ray, my son has devised a radium applicator that concentrates the effect of the irradiation closely to the region of the tube.

(9) Vitamin insufficiencies, even when corrected by natural or synthetic combinations, will not produce a healthy child unless there is sufficient and continued consumption and utilization of healthful food. Many fads and fancies always attend newly acquired remedial agents. The so-called biochemicals, under various names and combinations, now in vogue will in time give way to overemphasis on other and newer discoveries, and so on *ad infinitum*. You and I must use common sense in these matters if we are to best serve our young patients and, incidentally, their parents. The health and strength obtainable from a well-balanced diet of the old reliables throughout

the ages are still obtainable from the same old reliables today—milk, eggs, butter, cheese, whole wheat bread, cereals, meat, liver, leafy vegetables, tubers, oranges, and all the orchard, citrus, and other fruits. These food obtained and consumed in sufficient bulk and in good environment will still produce healthy children. No synthetics will ever permanently take their place.

(10) Avoid meddlesome surgery and meddlesome medicine. Every patient is a law unto himself. This holds true in childhood as well as in youth and middle and old age. The practitioner knows by experience that even different members of the same family may react differently to similar diseases, they therefore need different management and treatment.

(11) There are several disorders and diseases causing deafness which strike so suddenly or so insidiously that we have been almost helpless to fend off their damage to the ear. I shall briefly discuss the deafness associated with heredity, meningitis, mumps, and syphilis.

Hereditary tendencies to several types of deafness may be shown, but environment in the largest sense is the more important etiologic factor. No immunity is so great that it can resist indefinitely repeated exposures to severe trauma or infection. Hereditary tendencies are ever present and, therefore, the family history may form an important background for all kinds of ear diseases and all types of deafness. But to state that a disease is hereditary does not explain its cause.

The neural apparatus of hearing is thought to be more often affected by hereditary influences than the conducting apparatus. This is probably because the neural machine in the cochlea and brain is more easily damaged by the local pressure, anoxia, or toxemia coincident to some diseases than the tougher mechanical apparatus in the middle ear.

One of the most prevalent forms of progressive deafness, beginning but not often discovered in youth, is otosclerosis. It usually shows a familial and hereditary background. A study of identical twins is being made, and it is hoped that it will throw some light on this subject. The cooperation of the pediatricians is desired in this work. If any of you know of twins of any age with otosclerosis or with a parent suffering from otosclerosis or progressive deafness, please arrange to have the children's hearing examined at least yearly. I will gladly contribute my services to this end.

ENORMOUS MYELOMENINGOCELE WITH FATAL LEAKAGE

Malformation at Foramen Magnum

ARTHUR D ECKER, M D , and J HOWARD FERGUSON, M D , Syracuse, New York

RECENT investigations have brought to clinical interest a long neglected anatomic syndrome. The Arnold-Chiari malformation consists of a downward prolongation of the cerebellum and medulla oblongata into the spinal canal, reversion of direction of obliquity of the upper cervical nerve roots, and extensive vascular adhesions in the subarachnoid space around the cerebellum. These abnormalities within the foramen magnum are almost always found in cases of myelomeningocele.^{1,2,3}

Recent workers have emphasized the danger of draining the sac because of the tendency of the malformed nervous system to act as a stopper at the foramen magnum. This effect explains those cases of hydrocephalus which follow aspiration or repair of myelomeningocele. The present case is reported to demonstrate both the huge size that such a sac may attain and the fact that death may ensue promptly after leakage from the sac as a result of the "stopper effect" with pressure on the medulla at the foramen magnum.

Review of Literature

This curious maldevelopment of the hind-brain was first recorded by Arnold in 1894. It was more fully described by Chiari in the following year. Later authors adopted the name "Arnold-Chiari malformation." In 1935 Russell and Donald¹ described 10 consecutive examples of this malformation in cases of myelomeningocele and showed how the deformity may be the cause of the hydrocephalus. Their theory was that the Arnold-Chiari malformation plugs the upper cervical part of the spinal canal and hinders the upward flow of the fluid into the subarachnoid channels of the posterior fossa through which it normally passes on its way to escape from the cranial arachnoid villi. They suggested that if hydrocephalus were due to such malformation then air injected by the lumbar route would collect in the ventricles and not in the sulci of the cerebral convexities. Furthermore, they pointed out that such a finding would indicate the desirability of decompress-

ing the spinal cord at the foramen magnum. On the other hand, Graftdijk⁴ thought that the cerebrospinal fluid could escape upward into the ventricles or subarachnoid space but that there was difficulty in passing through the ventricles down into the vertebral canal.

Recently, Dr Dorothy Russell⁵ wrote of cases of myelomeningocele in all of which the Arnold-Chiari malformation was found. "Taking the group as a whole there seems to be a good deal of variation in the actual shape of this malformation, i.e., in the length of the cerebellar component, the extent to which both cerebellum and medulla protrude downward into the spinal canal, and so forth. And equally, I feel there is much variation in the degree of obstruction presented by this malformation at the foramen magnum. I should doubt whether it is ever absolute, but I feel convinced that it constitutes an effective blockage from the point of view of the development of hydrocephalus."

In a case of this syndrome, Jacob⁶ found circumscribed groups of misplaced cells in the cerebrum and cerebellum which he attributed to disturbances in migration in the course of embryonic development. He also described similar disturbances of development of the central nervous system in cases of microcephalus with feeble-mindedness and convulsions.

Surgical Intervention—D'Errico⁷ has demonstrated the Arnold-Chiari malformation in 10 consecutive cases of myelomeningocele in infants where hydrocephalus developed. He decompressed the foramen magnum in 8 cases with 1 operative death. However, within two years 2 patients died of hydrocephalus and 2 from apparently unrelated causes. Improvement followed operation on the malformation, whereas tension of the fontanels and increased growth of the head followed repair of the spina bifida. D'Errico considered the advisability of the suboccipital operation before the onset of hydrocephalus and stated that in those cases that do not respond to operation it is conceivable that additional abnormalities, such as atresia of the aqueduct, may be present.

Occasionally, exploration for posterior fossa tumor in adolescents or adults has revealed,

Read at the Annual Meeting of the Medical Society of the State of New York, New York City, May 7, 1940.

From Syracuse University College of Medicine, Departments of Surgery (Prof. Albert G. Sault) and Pathology.

upon the speed and extent of the lesions. Deafness usually supervenes in the second week of mumps.

I have examined several children whose first symptom of ear involvement during mumps was tinnitus, increasing violent ringing or singing noises in the ear. Subsequently, they became deaf. Remember that tinnitus is always a warning of degeneration in the neural apparatus of hearing. Energetic measures are, therefore, warranted to prevent the deafness. It would appear that spinal puncture, phlebotomy, purging, or other measures to diminish intralabyrinthine pressure (choked labyrinth) and anoxia would be warranted in these cases. If applied early, the child is usually in good condition to stand them. They are also not without value for the threatening meningitis. I ask all pediatricians to look for tinnitus as a warning signal of the eighth nerve involvement. Unless diligently inquired for, the child will seldom call attention to tinnitus. The otologist needs the cooperation of the pediatrician who sees the child during the mumps. In this way he progresses for the prevention and treatment of mumps deafnesses.

Syphilis is greatly exaggerated as a cause of

acquired deafness in children. A positive Wassermann may be purely coincidental, but treatment by the arsenicals, although indicated, often endangers the ears. Total deafness may result not from the syphilis but from the drug.

I regret that I cannot bring to you a cure-all for deafness. That is, and always will be, impossible because deafness is only one symptom of many disorders and diseases of the body. I have stressed early and repeated testing. This is worthwhile for prevention and cure. The most satisfactory treatment will always be preventive. It is the most difficult to enforce.*

140 East 54th Street

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* Under the guidance of Miss Mary E. Van Horn of the New York League for the Hard of Hearing, a demonstration was staged to illustrate some of the tests for hearing and some of the results obtained for little children by speech training, lip reading and hearing aids. It is believed that in the not distant future these aids for speech hearing will be used by all acoustically handicapped children in the regular classes of our public and private schools.

AMERICAN CONGRESS OF PHYSICAL THERAPY TO MEET IN SEPTEMBER

The twentieth annual scientific and clinical session of the American Congress of Physical Therapy will be held September 1 to 5, inclusive, 1941, at The Mayflower, Washington, D. C.

The mornings will be devoted to the annual instruction course, and the afternoons and evenings will be devoted to the scientific and clinical sessions. The seminar and convention proper will be open to all physicians and qualified technicians.

All the phases of physical medicine will be covered in the general program, including a special symposium on poliomyelitis. The program will be of interest to the general practitioner as well as to the specialist in physical therapy.

For information concerning the seminar and preliminary program of the convention proper, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

At the same time the twenty-fifth annual meeting of the American Occupational Therapy Association will be held at The Mayflower. A combined meeting will be held on Wednesday, September 3, 1941. For information concerning the Occupational Therapy Association meeting, address Mrs. Meta R. Cobb, 175 Fifth Avenue, New York City.

EXAMINATIONS—AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories (Part I) for Group B candidates will be held in various cities of the United States and Canada on Saturday, January 3, 1942, at 2:00 P.M. Candidates who successfully complete the Part I examinations proceed automatically to the Part II examinations held later in the year.

Applications for admission to Group B, Part I, examinations must be on file in the Secretary's office not later than October 6, 1941. Applications for Group A must be in the Secretary's office by March 1, 1942.

The general oral and pathologic examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board, meeting at Atlantic City, New Jersey, immediately prior to the 1942 meeting of the American Medical Association.

As previously announced in the Board booklet, this fiscal year (1941-1942) of the Board marks the close of the two groups of classification of applicants for examination. Thereafter, the Board will have only one classification of candidates, and all will be required to take the Part I and Part II examinations.

For further information and application blanks, address Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

hand which was held with the thumb everted and fingers flexed. Neither deep tendon reflexes nor plantar responses could be elicited in the lower limbs. The abdominal reflexes were present and equal. The biceps and triceps reflexes were normal. Pain sensations were clearly impaired in the lower limbs but could not be accurately tested. The skin over the pedicle of the myelomeningocele was normal but over the rest of the sac it was thin and shiny and contained large blood vessels. Three red ulcerated areas on the right side of the sac discharged fluid. No other abnormalities were revealed by physical examination.

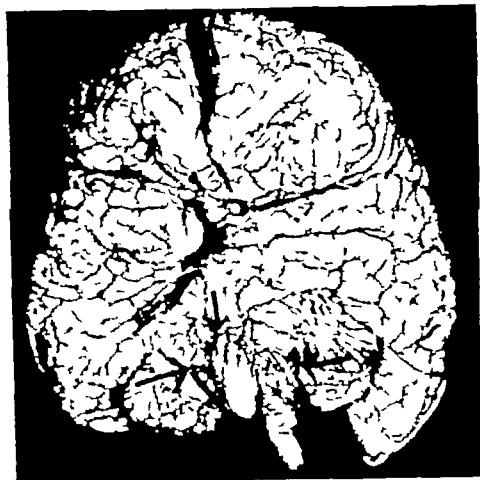


FIG 3 Base of the brain. Tongue-like projection of left cerebellar lobe. Arrows mark groove caused by pressure on the foramen magnum.

On admittance the temperature was normal (99.6 F, by rectum) but promptly began to rise and continued to do so steadily for three days until the patient's death, at which time it was 103.8 F. The respiratory rate was 55 per minute on admittance, 90 per minute on the next day, and subsequently between 70 to 90 per minute. Although there was mild pharyngitis there was no dyspnea, coughing, or cyanosis. Examination of the urine yielded negative findings except for a minimal amount of albumin. Examination of the blood revealed normal findings.

Operative intervention, which had been contemplated as a palliative procedure, was deferred because of the fever and tachypnea. Since fluid was leaking from the sac it was thought best to aspirate most of it. Five thousand cubic centimeters of clear yellow fluid were obtained and found to contain 1 lymphocyte per cubic millimeter and 68 mg of total protein per hundred cubic centimeters. After the sac was aspirated, a firm bandage was wrapped around

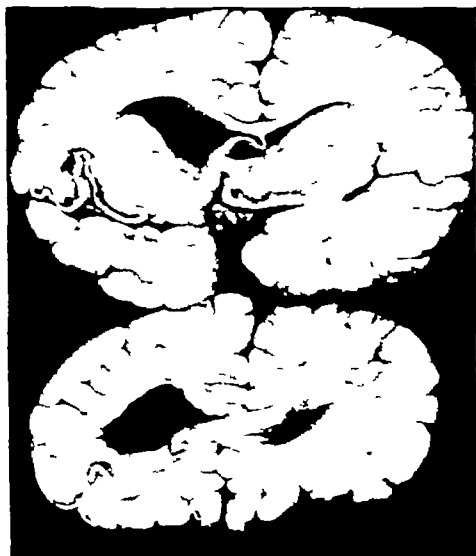


FIG 4 Coronal sections of the brain. Dilatation of lateral ventricles, left more than right.

it and the patient's body in an attempt to minimize cerebellomedullary herniation at the foramen magnum, to which were attributed the rise in temperature and respiratory rate. Repeated examination of the thoracic and abdominal viscera revealed no abnormality. Specifically, there was no evidence of pneumonia. On October 13 the respirations became progressively labored in the early evening, the extremities became cyanotic, and exitus occurred at 8:00 P.M. (four days after the beginning of leakage from the sac).

Necropsy was performed an hour later and revealed no abnormalities in the thoracic or abdominal viscera. The anterior fontanel measured 2 cm. in diameter, and there was some separation of the bones of the vault. The brain weighed 950 Gm. There was flattening of the convolutions of both cerebral hemispheres, and the third ventricle bulged ventrally. There was a tongue-like projection of the left cerebellar lobe into the foramen magnum and the upper part of the spinal canal which measured 6 cm. in length and 2 cm. in diameter (Fig 3). There was only minimal herniation of the right cerebellar tonsil into the foramen magnum. The caudal surface of the cerebellum and the ventral surface of the medulla were deeply grooved by the foramen magnum (Fig 3). There was a suggestion of a groove on the upper surface of the cerebellum which may have been caused by the pressure of the tentorium. There were many arachnoidal adhesions around the cerebellum.

The brain was sectioned after it had been fixed in formalin. There was marked dilatation of both lateral ventricles, the left more than the right (Fig 4), and moderate dilatation of the third ventricle. The aqueduct and fourth ven-



FIG 1



FIG 2

FIG 1 Myelomeningocele seen from the right side on September 22, 1939 Three macerated areas are seen

FIG 2 Myelomeningocele seen from the left side Paralysis of both lower limbs and the left upper

instead of a tumor, the Arnold-Chiari malformation of the hindbrain in partial development.^{2,7} Indeed, it is possible that this malformation may be present in most cases of congenital hydrocephalus

Case Report

This patient was referred by Dr R D Severance At birth, on October 23, 1938, there was observed a swelling in the midline of the lumbar region, the size of a small grapefruit (approximately 45 cm. in circumference) It was noted at that time that the infant's left upper limb and both lower limbs were paralyzed. The motions of the head, neck, and right upper limb were apparently normal and no other abnormalities were discerned. The sac gradually grew in size In May, 1939, when the patient was seven months old the circumference of the mass was $27\frac{1}{2}$ inches (69 cm) In July it was $46\frac{1}{2}$ inches (116.3 cm)

On September 21, 1939, the infant still suffered from paralysis of the left upper and both lower limbs. Both the fronto-occipital and suboccipitobregmatic circumferences of the skull were 45 cm The sac of the myelomeningocele was greater than the child's trunk (Figs 1 and 2) The distance from the top of the shoulder to the buttock was 30 cm and from the upper

pole to the lower pole of the sac was 31 cm, from the right side to the left side of the pedicle of the sac, the distance measured around the infant's chest was 36 cm, but measured around the sac it was 57 cm The distance around the sac from the upper part of the pedicle to the lower part was 73 cm The pedicle was 11 cm long The sac could be transilluminated. The weight of this sac of fluid, the size of a watermelon, kept the child anchored and prevented even its turning over There were some areas of maceration on the right side of the sac Arrangements for hospitalization were being made, when, on October 9, 1939, a small amount of watery discharge appeared at one of the macerated areas The patient was brought to the University Hospital on the following day

Physical examination on admittance revealed a head with prominent frontal and parietal bosses The fronto-occipital circumference was 19 inches (47.5 cm) The scalp over the anterior fontanel was tense The head was held backward but there was no stiffness of the neck There was some asymmetry of the chest The ribs on the right side seemed more prominent than those on the left, and the sternum was apparently on the left of the midline. The flaccid paralysis of both lower and the left upper extremities was essentially unchanged, although there was a little power in the grip of the left

way along the aqueduct by slight posterior dislocation of the brain stem with impingement against the edge of the tentorial notch

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Discussion

Dr W H Hamby, *Buffalo, New York*—I would like to congratulate Dr Ecker upon his study of this case and to thank him for the photographs of this tremendous lesion. I have never seen one so large. The Arnold-Chiari malformation and its role in the production of hydrocephalus demonstrates how knowledge can be lost in the literature. It was not until Dorothy Russell reinvestigated the problem that the significance of this earlier work was appreciated. Dr D'Errico operated upon a series of these patients and demonstrated that the hydrocephalus could be arrested by repairing the malformation.

I have taken a conservative approach to this problem. Within the past five years we have repaired possibly 20 cases of meningocele and myelomeningocele of mild extent, without the occurrence of hydrocephalus and without fatality in any case. We consistently have rejected for operation patients with evidences of major involvement of cauda and feel that we have, thereby, acted in the best interest of our patients. I believe that in deciding upon advising surgery in these cases one must take into consideration more than the possibility of conserving a life by completing surgically the repair of an extensive lesion. One should take into consideration the effect upon the child, upon the parents, and the other children in the family—the preservation of the life of a patient who will spend his life in a wheel chair, developing and healing decubitus ulcers, and who will be an outcast from normal life because of nonfunctioning sphincters. This is a decision that should not be left with the parents entirely. They naturally are under an emotional strain that precludes good judgment, and they have no conception of the difficulties they will encounter. Where the lower cord or cauda is seriously involved, it is my impression that this is, par excellence, the situation where "it is better to make a whole new baby than to make a new baby whole."

Although I have not been able to obtain postmortem examinations on all children who have died with large myelomeningoceles, it has been my observation that those having hydrocephalus that was or was not recognized before death also had the Arnold-Chiari malformation.

Dr Tracy J Putnam, *New York City*—To me, the most important aspect of the case reported by Dr Ecker is the variety and multiplicity of the lesions present. It vividly illustrates the fact that serious congenital defects are usually multiple. The defects are not confined to any one germ layer or any one part of the body, as in this case they are present in the brain, the spinal cord and its meninges, and the vertebrae. Not infrequently there are abnormalities in the mouth, such as cleft palate, in the extremities, and in the intestinal tract as well.

When several defects occur together, the natural tendency is to classify the case as an example of the most striking one—in Dr Ecker's case, the meningocele. If we study a group of cases of malformations carefully, however, as he has done, we find some interesting correlations and transitions. That between hydrocephalus, spina bifida, and meningocele is well known. The relation between hydrocephalus, the Arnold-Chiari malformation, congenital dysplasias of the cerebellum, such as the Marie-Tooth syndrome, syringomyelia, and deformities of the base of the skull and cervical vertebrae are less familiar, but transitions may be found.

This presentation has several practical aspects. The first is that it is important to make a thorough investigation of every case of congenital malformation before deciding on a line of treatment. If the baby with a meningocele is paraplegic or imbecile, there is no use in operating on the meningocele no matter what its condition. The same principle needs to be applied even more rigidly to hydrocephalic infants, one can usually reduce the intraventricular pressure by operation in any case, but the infant is almost certain to succumb if there are other extensive cerebral defects. On the other hand, now that we have several effective types of treatment for hydrocephalus, operations for meningocele may be undertaken with more freedom.

In closing, I should like to point out one important method of distinguishing between internal and the so-called external hydrocephalus. Puncture of the ventricle produces a fluid containing little protein—less than 10 mg—unless it is infected, when, of course, it contains cells. Puncture of a subdural cyst, on the other hand, yields a fluid that is often yellowish and always contains a large amount of protein, usually over 200 mg. It is important to make a differentiation, as there is an effective treatment for each of these conditions.



FIG 5 Physiologic obstruction midway along aqueduct

tricle appeared normal in size, but the fourth ventricle was deformed by the pressure against the foramen magnum.

Between the twelfth thoracic vertebra and the sacrum the sac of the myelomeningocele presented the skin and subcutaneous fat were dissected off and revealed a smaller sac of dura within which was a corresponding sac of arachnoid containing clear fluid. There was failure of union of the neural arches between the eleventh thoracic and first sacral vertebrae. On the right side there was a winglike posterior projection of the transverse processes and pedicles of the lumbar vertebrae. There was no evidence of pedicles or transverse processes on the left. The spinal cord was of normal diameter at the level of the twelfth thoracic vertebra, but, as it descended it became narrowed to the thickness of a shoestring. In the root of the meningocele the spinal cord became firm and bulbous, measuring 2 cm in diameter. Below this mass the filaments of the cauda equina came off. As the sac was being dissected off, the retroperitoneal space was entered on the left side.

Microscopic study revealed edema and some proliferation with acute swelling of the oligodendroglia in the cerebral cortex. In the cerebellum there was apparently an increased number of capillaries with thickened walls and some perivascular accumulations of the cells. The sections of the lower thoracic portion of the spinal cord revealed distortion of the normal structure as well as thickening of the pia. There was also perivascular fibrosis. The wall of the meningocele was thick and lined externally by skin, beneath which was fat and fibrous connective tissue. The inner lining of the meningocele contained a few islands of ependymal cells, some in true rosette formation. The tumor found at

the caudal end of the spinal cord was composed of encapsulated fat—that is, a lipoma—through and around which nerve fibers were passing. No group of misplaced cells was found in the cerebrum or cerebellum.

Comment

It was surprising to find marked internal hydrocephalus in this case, since the external diameter of the skull was practically normal, although it had increased in the last two weeks of life. The dilatation was limited to the third and lateral ventricles and was not present in the aqueduct or fourth ventricle. Necropsy revealed a pin-point opening between the aqueduct and third ventricle but no internal obstruction. There was some suggestion of grooving of the upper part of the cerebellum by the tentorium, and there may have been a block at the upper part of the aqueduct as a result of pressure of the brain stem against the tentorium.

One of us (A. D. E.) has demonstrated such a temporary block in a young adult with this condition by injecting a radio-opaque substance into the ventricular system supratentorially. Repeated roentgenograms (Fig 5) revealed that the substance was blocked about halfway down the aqueduct. At subsequent exploration of the posterior fossa which disclosed the Arnold-Chiari malformation, fluid injected into the lateral ventricle was freely recovered from the fourth ventricle and also found to contain some of the substance previously injected. It seems that with the original partial blockage of the outlets of the ventricular system in the posterior fossa there results the beginning of internal hydrocephalus, which may result in relatively greater dilatation of the anterior than posterior horns. The latter may result in slight posterior displacement of the brain stem with impingement against the edge of the tentorial notch. Thus, there results another point of blockage of the ventricular system—namely, midway along the course of the aqueduct.

Summary

There is reported a case of enormous myelomeningocele with fatal outcome soon after leakage from the sac began. The Arnold-Chiari malformation of the hindbrain was found and compression of the brain stem at the foramen magnum explained the fatal issue. There was dilatation of the third and lateral ventricles but the fourth ventricle and aqueduct were not dilated and the circumference of the skull was normal. It is suggested that there was a second point of obstruction mid-

Type of Patient

We observed a series of 30 patients over a period of about six months. Of these, 15 were cases of natural menopause, 9 were cases of artificial menopause (5 as a result of x-ray, 4 resulting from surgery), and 6 were those of early or impending menopause in which the patients were still menstruating but had menopausal symptoms.

The age average in the natural menopause cases was 50, in the artificial menopause cases, 39, and in the group of early menopause, 40.

The average duration of menopausal symptoms in all cases was three years—the longest duration being eight years and the shortest six months.

Symptoms

Flushes and sweats were the outstanding subjective symptoms in 22 cases and were present in lesser degree in the other 8.

Headache and vertigo were complained of by 23 of the patients and to some extent at one time or another in the other 7 cases.

Joint pains were a prominent symptom in 10 cases and were present in slight degree or of fleeting nature in many of the others.

Palpitation, precordial pain, and dyspnea were prominent symptoms in 10 cases.

Insomnia was a frequent symptom usually concurrent with flushes and sweats at night.

Psychic symptoms such as depression, "nervousness," crying spells, and other manifestations of emotional instability were present to some extent in most of the cases but were specially marked in 8 cases. Six of these had been diagnosed as psychoneurotics in other clinics, 1 as a case of conversion hysteria, and 1 as "neurasthenia."

Weakness, and lassitude were other symptoms occurring frequently.

Itching of the vulva was present in a marked degree in 2 cases, 1 of which had a severe vaginitis following x-ray sterilization.

Clinical Improvement

Flushes and Sweats—There was entire or almost entire relief from these symptoms in 19 cases and marked improvement in 8 others. In other words, a good clinical result was secured in 27, or 90 per cent, of the cases. Three patients were not at all, or only slightly, relieved of these symptoms (all of these were in the group in whom psychoneurotic symptoms were predominant).

Headache and Vertigo—These symptoms were greatly relieved in 3 patients (10 per

cent) and to a lesser degree in 8 (27 per cent).

Joint Pains—These were slightly relieved in 5 of 10 patients.

Psychic Symptoms—In the cases in which psychic symptoms were predominant, no effect could be seen with stilbestrol. Those demonstrating mild nervous symptoms obtained some relief.

Other Symptoms—Palpitation, precordial pain, dyspnea were slightly improved in a few cases. Weakness and lassitude were not affected.

Vaginitis and Kraurosis—The 1 patient with severe vaginitis did not take the medication long enough to observe any effect. One patient who had an early kraurosis vulva and complained of severe itching was only slightly relieved.

Blood Pressure—An attempt was made to ascertain the effect of stilbestrol therapy on blood pressure. Seven patients had, at first examination by us or at previous examinations by others, a hypertension (systolic over 150, diastolic over 100). Of these, 4 subsequently were found to be within normal limits. One other improved from 210/110 to 140/90. The other 23 patients retained their normal blood pressures during the treatment. We feel that where an improvement in blood pressure occurred it was due to the relief from the flushes, sweats, and insomnia rather than to any direct effect on the hypertension.

Our impression is that, in general, the greatest effect of the drug is to relieve the flushes and sweats and, as a result of this, to produce a subjective relief.

The time required to produce this improvement was in most cases about two weeks. In some cases marked improvement was noted by the patient within a week. In patients in whom the dose was subsequently reduced to 1 mg every two or three days, it was noted that in some the improvement could be maintained with such a reduced dose. One patient, suffering from severe menopausal symptoms following x-ray castration, received great relief within a week after therapy was begun. She continued to take stilbestrol for about four months, the dose gradually being decreased to 1 mg every five to seven days. The medication was then discontinued entirely, with no recurrence of menopausal symptoms in the two months' period to date. In other patients there was a recurrence or increase in severity of the symptoms when the dose was reduced, necessitating a return to the daily dose.

TREATMENT OF THE MENOPAUSE WITH SMALL DOSES OF STILBESTROL

SEYMOUR WIMPFHEIMER, M D , and LOUIS PORTNOY, M D , New York City

MANY investigators have reported their experiences with the use of stilbestrol, a synthetic estrogen. There is unanimity of opinion that the drug is a potent estrogenic agent and that clinically its effect is equal to that of the natural estrogens. Most authors emphasize the advantages of stilbestrol over the natural estrogens. These are its ease of administration, its efficacy when administered orally, its prompt action, and its low cost. There have been conflicting reports as to its toxicity. Shorr, Robinson, and Papanicolaou,¹ using an average daily dose of 2 to 4 mg, found that toxic symptoms occurred in 80 per cent of their patients. On the other hand, many investigators^{2,3,4} using the drug in similar or higher doses have not found so high an incidence of toxic manifestations or have noted that when toxic symptoms did occur they were usually of a mild or transitory nature. The varying doses used by different investigators, ranging from 0.1 to 30 mg and more daily, may account for these differences in toxic effects of the drug, although some authors are of the opinion that there is no parallelism between the size of the dose and the occurrence of the toxic symptoms. Individual susceptibility to the drug may be a factor in this connection.

We limited the dose given to our patients to a definite small amount—namely, a maximum of 1 mg a day. Administering this small dose to 30 patients, we noted the effect of the drug both clinically and upon vaginal smears, at the same time noting evidences of toxicity.

The chemical composition and properties of stilbestrol, a synthetic estrogen, were first described by Dodds, Goldberg, Lawson, and Robinson.⁵ In determining the estrogenic activity of diphenylethane and stilbene derivatives, these workers found the most potent of these to be 4,4'-dihydroxy- α,β -diethylstilbene, a derivative of 4,4'-dihydroxystilbene. This latter compound, which they found to be the mother substance of a series of estrogenic agents, was named stilbestrol. They found this compound ($C_{18}H_{20}O_2$) capable of ready synthesis and showed its structural resemblance to estrone ($C_{18}H_{22}O_2$). They also determined its potency to be two to

three times that of estrone and found that it was active when dissolved in oil or alcohol or in aqueous solution, as the sodium salt. Commercially, the drug can be prepared in forms suitable for administration by injection, by mouth, or percutaneously in ointment form. In our study we have used the drug by the oral route only in both tablet and gelatin capsule form.*

The drug is probably absorbed from the small intestine when given orally. The question has been brought up as to whether untoward symptoms, when they occur, arise as a result of local irritation or are of central origin. Some workers have found toxic effects to occur regardless of whether the drug was given by mouth or by injection, and, therefore, conclude that they are of central origin. Others⁴ have found untoward effects following oral administration which were absent or less pronounced when the drug was given by injection. Shorr and his co-workers have suspected that the drug causes toxic effects on the liver and have performed liver function tests on their patients to determine what impairment occurred. However, neither these workers nor others^{2,3,6} who have carried out liver function tests have been able to demonstrate any definite impairment of hepatic function in their patients.

Method of Treatment

We gave 30 patients stilbestrol by mouth in doses of 1 mg a day. Most of them received it in tablet form, several were given it in the form of capsules. Three of the patients were started with 2 mg a day, but this dose was not continued for more than one week. In many cases where there was improvement, the dose was reduced to 1 mg every other day and, in a few, to 1 mg every three days. The average length of treatment in 26 of the cases was thirteen weeks or an average total dose of 90 mg. One patient was given the drug continuously for thirty weeks, a total of 215 mg. Four patients took the drug for less than five weeks either because of intolerance to it or lack of cooperation.

* Stilbestrol (1 mg tablets) was supplied by Squibb and estrobenec (1 mg capsules) was supplied by Ayerst McKenna & Harrison. We wish to thank these firms for their cooperation in supplying us with the necessary material.

given her (stilbestrol, progynon DH, or sedatives)

Lassitude and drowsiness occurred in 4 patients, but it was difficult to evaluate these symptoms or to determine whether they were a result of the medication or part of the original illness for which the patients were being treated

Diarrhea occurred in 3 patients. In 1 of these the attack was transient and may have been due to a dietary indiscretion. In the 2 other patients diarrhea was noted in association with nausea. One of the patients also complained of vomiting.

Itching and dryness of the skin occurred in 2 patients but were so mild that the administration of the drug was not discontinued. Urticaria occurred in 1 patient after she took the drug for seven weeks. The medication was stopped and the rash disappeared.

Summary

1 Thirty menopause patients who were treated with stilbestrol, in a dose of 1 mg a day orally for a length of time averaging about three months, were studied over a period of six months.

2 Ninety per cent of the patients showed good clinical improvement, usually within a short time after the start of treatment.

3 Vaginal smears were studied throughout the period of treatment. In the majority of patients where the castrate type of smear was demonstrated, a change to the cornified type showing estrus reaction was noted. Regression of the smears following a lapse in treatment could also be demonstrated.

4 Uterine bleeding occurred in 13 of the 30 cases—in 8 during treatment and in 5 after, at its termination.

5 Untoward symptoms resulting from the medication were not prominent. Although 40 per cent of the patients complained of nausea

and heartburn at times, these were of a mild and transitory nature and did not necessitate withdrawal of the drug. Four patients (14 per cent) refused to continue the drug because of alleged severe by-effects of a gastrointestinal nature.

Conclusions

Stilbestrol is a potent estrogenic agent that effectively relieves the symptoms of the menopause. An oral dose of 1 mg or less daily is sufficient to produce this beneficial effect. With such a small dose, untoward symptoms when they occur are usually mild and transitory and do not require permanent withdrawal of the medication. Although no definite toxic effects have been proved to the present time, the drug should be administered with caution and under strict supervision. The same limitations and contraindications that apply in the use of other estrogenic agents should be observed in regard to stilbestrol.

We feel that the efficacy of the drug and its ease of administration and low cost, together with the fact that when given in low doses it has thus far not shown any significant toxic effects, should make stilbestrol worthy of inclusion in our therapeutic armamentarium.

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MORE ARTFUL THAN ARTISTIC

In a letter to the *Medical Week*—the attention of physicians in the New York area, especially in Manhattan, is called to the following racket:

A man who states that he is an artist and in dire need has been visiting the offices or homes of physicians in an attempt to sell paintings that he says he has painted. Without authorization, he uses the names of several physicians who are known for their interest in art and claims to have been referred by them. He also states that he has been their art teacher.

The physicians whose names he uses for reference have no information at all concerning this

artist. He is unknown to most of them. He has not taught any of them. The only contact which they have had with him has been when he has approached some of them in order to sell them paintings. He then uses their names without their consent when he approaches others. He makes a very forceful plea of poverty and sells these mediocre oils purely on a basis of charity.

This statement should serve as a warning to physicians that this man is using the names of their colleagues without authorization. His story should be fully investigated before giving him any charity.

Vaginal Smears

Vaginal smears were examined on our patients throughout the period of this study. Some of the smears were taken by us directly when the patient visited the clinic, but the majority of them were made by the patient herself at home and brought to us. It was quite easy to instruct patients to do this themselves, and the smears prepared by them were found to be adequate for study and classification. The advantage of this method was that in this way we could follow changes in the vaginal smear at frequent intervals, in most cases biweekly.

The typical vaginal smear of the untreated menopause patient has been described as one in which the cells present are small, with many leukocytes, cellular debris, and few, if any, of the large flat epithelial cells containing pyknotic nuclei which are characteristic of the vaginal smear of the woman with normal ovarian function. This typical menopause smear is designated as Reaction 1. The normal follicular phase of vaginal smear, in which essentially the only element seen is the large epithelial cell, extremely distinct, usually occurring in groups in regular alignment, with distinct cell borders and small nuclei is Reaction 4. Between Reactions 1 and 4 there are intermediate types which, according to the predominance of the types of cells and other elements present, are classified in this numerical way, as 1-2, 2, 2-3, 3, and 3-4.

Several of our cases demonstrate strikingly the effect of stilbestrol on the vaginal smear, showing a change from grade 1-2 to 3-4 within two weeks of treatment—these patients also had an associated prompt improvement in subjective symptoms. In most of the others where results were good the change in the vaginal smears was more gradual.

The typical menopause smear 1-2 was observed in 10 of our cases before treatment was begun. In all of these, with therapy, the smear changed to the follicular type, 3-4. Clinically, 8 of these patients obtained good improvement, 1 showed a fair result, and 1 showed no improvement.

Of the other 20 patients, 8 showed a follicular type of smear before treatment was begun, and in 12 no smears were obtained before instituting therapy. In these cases, however, the typical effect of estrogen therapy on the vaginal mucosa was demonstrated in the majority of instances in that there occurred a regression to the castrate type, 1-2, when treatment was discontinued and im-

provement to the follicular type, 3-4, when it was again resumed. These lapses in treatment, whether deliberate on our part or through neglect of the patient to return to the clinic for several weeks, usually also produced a concomitant recurrence or increase in severity of subjective symptoms.

To summarize, the relationship between clinical improvement and changes in the vaginal smear is as follows:

In 21 cases we found a parallel improvement in subjective symptoms and vaginal smears.

In 4 cases where, subjectively, the result was good there was no improvement in the type of smear.

In 2 cases there was an improvement in the vaginal smear but failure as far as the symptoms were concerned. (In both of these patients there was a large psychic factor.)

Three patients did not cooperate long enough to permit definite conclusions.

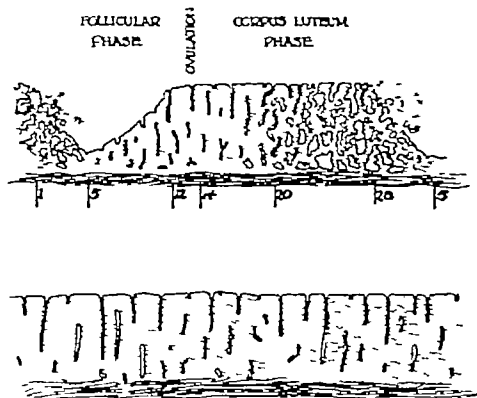
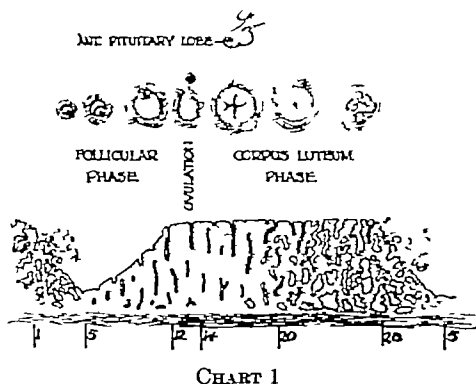
Vaginal Bleeding

Bleeding from the uterus occurred one or more times in 13 of the patients. In 5 it occurred after withdrawal of the medication and in 8 while medication was still being taken. In this regard it is interesting to observe that in the 2 instances where young women had had both adnexa removed vaginal bleeding occurred. Both these patients were incapacitated by marked menopausal symptoms and were affected mentally by their castration. Here, vaginal bleeding, simulating a period, produced a marked psychic improvement. In 1 case there was a period of bleeding lasting four days and, one month later, a recurrence of the vaginal bleeding. These patients had intact hymen so that endometrial or even vaginal studies were not feasible.

Whenever vaginal bleeding was reported the patient was examined to rule out any other possible cause such as fibroids or malignancy. In 1 patient with vaginal bleeding an endometrial biopsy revealed a hyperplasia of the endometrium.

Untoward Symptoms

Nausea was the most prominent untoward symptom. Twelve patients (40 per cent) complained of nausea at one time or another, but this was usually not severe and of transient nature. Four patients refused to take the medication because of a severe nausea. One of these was subsequently given the same drug in capsule instead of in tablet form without any complaint. Another highly neurotic patient manifested intolerance to any drug



sway continuing the proliferation of the endometrium into a secretory type, reaching its height premenstrually

The hormones, reaching a high concentration, inhibit the anterior pituitary, thereby causing a withdrawal of estrogen and progesterone which results in the breaking down of the superficial layer of the endometrium together with its bloody and mucous secretion. The latter is the external evidence of menstruation. This cycle repeats itself with the development of a new graafian follicle the following month and continues normally from puberty through the climacterium, except during pregnancy, lactation, and chronic diseases.

With this as a basis for normal function, let us discuss the most common forms of menstrual disturbances which you, as pediatricians, see in your female patients at the time of puberty. With each condition I shall attempt to show you the underlying pathology resulting from disturbances in the glandular make-up of the individual.

(1) *Amenorrhea*—The pediatrician is probably the first man consulted by a disturbed mother greatly concerned because her daughter has not menstruated. Secondary sexual changes have appeared, but there is no evidence of any menstrual discharge. An old-fashioned notion exists that amenorrhea at this time leads to tuberculosis. No greater fallacy has ever existed because the reverse is true—children with tuberculosis frequently do not menstruate.

Amenorrhea occurs for various reasons. First, congenital absence of the organs of the generative tract in whole or in part and, second, glandular disturbances. This paper concerns itself with the second group.

It is well known that all of the endocrines are interrelated through the anterior

lobe of the pituitary gland, the latter having thyrotropic, adrenotropic, and ovarian secretions. Therefore, with the disturbance of any one of these glands the others may be affected. In conjunction with the activity of the anterior lobe of the pituitary gland at puberty we find evidences of thyroid activity. This is displayed frequently in the adolescent girl by a temporary enlargement of the thyroid gland, spoken of as an adolescent goiter, which usually recedes after stabilization or iodine therapy. In many instances, this is an evidence of hypothyroid activity with its obesity, sluggishness, dry skin, lowered metabolism, and amenorrhea. It is plain to see that basically the disturbance is thyroid in nature and not ovarian, and the treatment, of course, is thyroid extract. This therapy is well known and its results speak for its efficacy.

Having ruled out a goodly proportion of amenorrhea cases at puberty because they are due to the thyroid activity, let us turn our attention to the other group that is due to disturbances in the ovary and pituitary body. Failure of either gland should be determined if possible. Estrogen determinations on the blood and urine can be done. If these are not available, vaginal smears can be used as an indication of ovarian activity. Albright¹² has modified the Aschheim-Zondek⁴ technic to determine the follicle-stimulating hormone as an indicator of pituitary activity. These two tests should aid in differentiating the faulty gland. Although the ovary and pituitary gland may exist in the body, it is quite possible that they may not function normally. It is possible that, even though the other secondary characteristics that denote ovarian activity have been developing,

THE PHYSIOLOGIC APPROACH TO THE ENDOCRINE TREATMENT OF MENSTRUAL DISORDERS OF PUBERTY

LOUIS A. SIEGEL, M D , Buffalo, New York

IN THE past twenty years medical progress has been directed toward the prevention of disease. This has been brought about by a better understanding of etiology, physiology, and pathology. In the infectious diseases, etiology has played an important role, leading to cures by attacking the cause of the infection or by substances to combat them.

In the group of functional disturbances, physiology has played a more important role. This has been especially true in the field of endocrinology. It was brought about by the discovery and isolation of new hormones which have led to a clearer understanding of the physiology of these glands. Investigation showed that we would have to change our ideas regarding the functions of some of the internally secreting glands, particularly the pituitary and sex glands. These glands we now know are especially concerned with the generative tract, and it is the purpose of this paper to discuss with you this newer physiology. This will give you a physiologic approach to the underlying causes of generative tract disturbances. With this in mind you should be able to select the proper hormone to be used in each type of disturbance.

As pediatricians, and following along the lines of prevention, disturbances in young girls before and during puberty should greatly interest you. You can do much to correct early abnormal physiologic functions so that your female patients will have a more normal adolescent period.

At the time of puberty secondary sexual changes have already started as evidenced by enlargement of the breast, appearance of hair suprapubically and in the axillae, changes in body contour, culminated by the appearance of the menstrual discharge. With menstruation established we assume that the child has now reached womanhood and is capable of reproduction. Many of the disturbances at this time concern the menstrual function, and I would, therefore, like to discuss briefly the newer theories of menstruation.

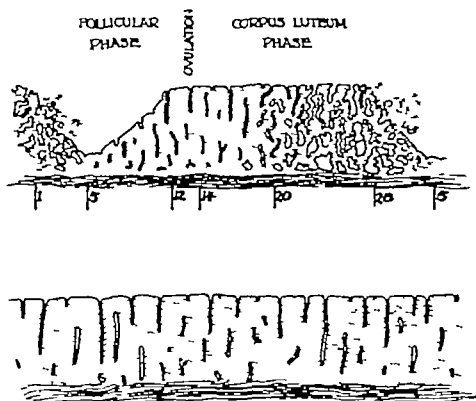
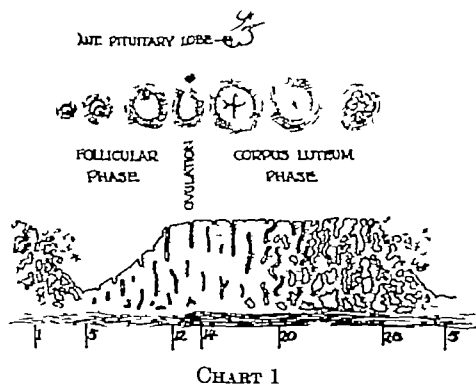
As shown in Chart 1 the pituitary body has become all important in the control of the sex glands. The anterior lobe of the pituitary body is directly responsible for the activity in

the ovary. I am excluding for many reasons the other functions of the anterior lobe since our topic is particularly concerned with menstrual disorders.

For matters of simplification let us start with the pituitary secretions, which we will divide into A and B. The pituitary A secretion is directly responsible for stimulating primordial follicles in their development into mature graafian follicles. The latter begin to develop at the time of puberty. Before this, the ovary remains fairly quiescent. The graafian follicle produces the basic ovarian hormone spoken of as the estrogenic hormone. This hormone affects the uterus and the endometrium. It is responsible for a proliferating thickened endometrium and sensitizes the uterine musculature to contractions. Ovulation, which also begins with puberty, results in the transformation of the ruptured graafian follicle into a fresh corpus luteum. This is brought about by a reversible action between estrogen concentration and pituitary A. When estrogen reaches a particular concentration, pituitary A is inhibited, allowing pituitary B to function. Pituitary B secretes a hormone that transforms the graafian follicle into a corpus luteum. This body has the property of producing chiefly another hormone, spoken of as progesterone, and a small quantity of estrogenic hormone. Its chief function is to continue the further growth of the endometrium as affected by the estrogenic hormone into a secretive hyperplastic membrane, reaching its highest development premenstrually. Its other function is to counteract uterine contractions that are initiated by estrogen.

Therefore, basically we have two hormones in the ovary, estrogen and progesterone, both being produced by stimulation of the anterior lobe of the pituitary gland. Let us for a moment discuss menstruation in the light of these hormones.

The cycle starts with the developing graafian follicle, which produces a proliferating endometrium. This continues until about midway in the interval between two periods, at which time ovulation occurs. The first half of the interval, therefore, is under the direct influence of estrogen. After ovulation the corpus luteum with its progesterone holds



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The hormones, reaching a high concentration, inhibit the anterior pituitary, thereby causing a withdrawal of estrogen and progesterone which results in the breaking down of the superficial layer of the endometrium together with its bloody and mucous secretion. The latter is the external evidence of menstruation. This cycle repeats itself with the development of a new graafian follicle the following month and continues normally from puberty through the climacterium, except during pregnancy, lactation, and chronic diseases.

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Having ruled out a goodly proportion of amenorrhea cases at puberty because they are due to the thyroid activity, let us turn our attention to the other group that is due to disturbances in the ovary and pituitary body. Failure of either gland should be determined if possible. Estrogen determinations on the blood and urine can be done. If these are not available, vaginal smears can be used as an indication of ovarian activity. Albright¹² has modified the Aschheim-Zondek⁴ technic to determine the follicle-stimulating hormone as an indicator of pituitary activity. These two tests should aid in differentiating the faulty gland. Although the ovary and pituitary gland may exist in the body, it is quite possible that they may not function normally. It is possible that, even though the other secondary characteristics that denote ovarian activity have been developing,



CHART 3

the interrelationship between the anterior lobe of the pituitary gland and the ovary has not reached its full activity. It has been suggested that even though ovarian activity has started the function of ovulation may not be well established. We therefore should give it plenty of time to establish itself, and all of you have experienced cases of amenorrhea in young girls which have been cured by placebos and time. After a lapse of time (approximately one to two years) you are practically forced by the family to treat the amenorrhea. Although the ovary and its secretions are directly responsible for endometrial development and menstruation, the injection of ovarian substances will not produce stimulation of the ovary, because it is a well-known fact that injected hormones only substitute for, but do not stimulate, the mother gland. This, of course, means that should there be deficient ovarian tissue the injection of ovarian hormone would not be indicated. With large doses of estrogenic hormone it is possible to produce uterine bleeding but not true menstruation. We therefore must resort to the pituitary gland and its secretions to stimulate deficient ovarian tissue.

Today we have several substances that can be used for this purpose. Any active extract of the anterior lobe of the pituitary gland (prephysin and Armour's and Ayerst's preparations, etc.) or the extracts of pregnant mare's serum (gonadogen, gonadin, etc.) have the property of stimulating ovarian function. This has now been proved conclusively in both animals and humans.

It would therefore seem advisable that in cases of amenorrhea at the time of puberty, having ruled out thyroid deficiency, your treatment should be one of the above. These substances are so new that large series of cases have not been reported. Both these substances contain some impurities, and reactions should be watched. This is especially true of the products derived from pregnant mare's serum which contain small quantities of horse serum. I must, therefore, warn you as pediatricians that this newer generation has been subjected to varied injections of serum preparations for the prevention of contagious diseases and, if you are to use this product, you must test the skin of your patients for sensitivity. If they are sensitive, then you must desensitize them before using a full dose. In the anterior lobe extracts one may find reactions from a considerable quantity of foreign protein. These have not proved to be harmful. With improvement in the extraction of both substances the harmful elements should be eliminated.

Amenorrhea due to pituitary gland failure presents a difficult problem. Here, too, the use of anterior pituitary extracts may be tried.

(2) *Menorrhagia and Metrorrhagia*—Profuse and prolonged menstrual periods at the time of puberty, the so-called idiopathic juvenile bleeding, is a condition commonly seen by the pediatrician. The worried mother first consults the pediatrician because her daughter has shown signs of anemia, weakness, and prolonged bleeding. The periods usually are increased in duration and the bleeding may or may not be profuse.

Chart 2 will attempt to show you the pathology underlying this condition. In the upper half I have shown you the normal endocrine function of menstruation and in the lower part, the abnormal. We find that there is continued estrogenic stimulation. Behind this is a pituitary gland disturbance that has interrupted the ovarian-pituitary reversible reaction. There is no ovulation and, therefore, no corpus luteum formation (progesterone). Without this to mature the endo-

metrium, the latter continues to enlarge into a thickened hyperplastic membrane that breaks down and continues to bleed. There is no regular ovarian cycle.

Chart 3 shows you a microscopic picture of the normal endometrium in the second half of the interval. Chart 4 shows the endometrium characteristics of the juvenile type of bleeding. You will note the marked thickening as well as the cystic dilatation of glands forming the so-called Swiss cheese pattern found in this condition. The secretory phase is lacking and, therefore, the endometrium does not go through the normal cycle. The ovary, if looked at grossly, shows multiple small cysts, representing enlarged follicles with their increased estrogenic secretions. The restraining influence of the pituitary gland is missing. A corpus luteum is not to be found. You, no doubt, have had many instances where these young children have bled to the point of reducing their hemoglobin to 50, 40, and 30 per cent, thus necessitating transfusions. Many of these children have been curetted, some have been given small doses of radium with only temporary benefit. I have known of 2 cases in which hysterectomy was performed. The situation sometimes becomes serious, and transfusions, packing, and even curettage may be necessary to control the bleeding. One must exclude, of course, primary anemias, leukemias, purpuras, and other conditions that might be responsible for hemorrhage from any membrane in the body.

The treatment should be directed toward maturing these cystic follicles so that the endometrium could have the benefit of corpus luteum secretion. Pituitary B, the hormone that supposedly is responsible for corpus luteum formation, is not available as such. In the urine of pregnant women, however, there is a hormone called the anterior pituitary-like hormone. Thus, we believe, is derived from the chorionic epithelium of the placenta. In animal experimentation this substance has produced luteinization and hemorrhage in follicles.

Thus, it would seem reasonable to give anterior pituitary-like hormone, which appears on the market as antuitrin S, A P L, folutein, antophysin, and others, but more recent work on humans has shown that these substances produce destructive changes in the ovary and should only be given with caution. Corpus luteum extracts such as progestin, progesterone, lutein, etc., may be had. The results of the use of these substances



CHART 4

would be only temporary and have no effect upon the cystic ovary. It would seem more reasonable, therefore, to use products that would attempt to change the abnormal condition in the ovary. This would correct the faulty interrelationship between the pituitary gland and the ovary. Such substances as prephysin, gonadogen, gonadin, and Armour's and Ayerst's preparation might be used. Precautions in the use of these hormones have already been discussed. Recently, several articles have appeared on the use of testosterone propionate (male sex hormone) in profuse uterine bleeding. As a last resort this substance may be used. However, in children small doses should be used (10 to 20 mg. per week) because the masculinizing effects, even though temporary, may be disconcerting.

(3) *Dysmenorrhea*—Primary dysmenorrhea occurring with the onset of menstruation is extremely common, and its treatment still remains as perplexing as ever.

The new endocrines can now be added to the pages of remedies formerly used. Many of the older ones produced their effects by psychologic reactions. Others have been analgesic or have produced sedation. In the chart explaining menstruation (Chart 1) it is pointed out that estrogen has the power of sensitizing the uterine muscle to contractions and also inhibits the anterior lobe of the pituitary gland when it has reached sufficient concentration. On the other hand, progesterone was found to have a sedative effect upon the uterus with its resultant relaxation of the uterine musculature. The cramplike intermittent pains at the time of menstruation suggest excessive uterine contractions.

Two courses of treatment are therefore open to us. We can give enough estrogenic hormone to inhibit the anterior lobe of the pituitary gland, which in turn would inhibit

estrogen formation, or we can use large doses of progesterone to relax the uterine muscles so that it could not respond to estrogenic stimulation

More recently, there have been many converts to the estrogenic therapy. Injections of estrogenic hormone are started postmenstrually and are given throughout the month, individualizing the size of the dose to get the effect. Five thousand units given two or three times weekly throughout the cycle may be used to begin with, but the dose may be varied or lowered as is found necessary. Testosterone propionate with its inhibiting effect on ovarian activity has also been recommended. I should advise strongly against its use at the adolescent period because I do not believe it should be used before the ovary has stabilized itself.

Progesterone given before the onset of menstruation should theoretically relieve dysmenorrhea. Progesterone, proluton, progestin, lutein, and others are marketed. These products are still too expensive to be used freely. Mouth preparations of corpus luteum hormone have recently been introduced and, if they prove active, may be used for this purpose.

Meigs¹² in a personal communication feels that corpus luteum extracts seem to produce more pain at the periods, and he advocates the use of large doses of estrogenic hormone. My own practical experience with some form of atropine has proved as beneficial as some of the endocrine products. Given for two or three days before the onset of the period, it seems to reduce or modify the pain.

For the past two years a new synthetic substance called diethyl-stilbestrol (stilbestrol) which as yet is not on the market, has been used experimentally in place of estrogenic hormone. It is approximately two and one-half times stronger than estrogen, as 1 milligram corresponds to approximately 25,000 International Units. Even though it produces nausea and vomiting in approximately 25 per cent of cases it is worthwhile trying in dysmenorrhea. Children tolerate the drug very much better than adults and a milligram given every other day throughout the month has been used. No large series of cases have been studied to make any definite report.

(4) *Precocity*—The appearance of secondary sex characteristics and menstruation in children under 10 years of age is not common in this part of the country, and its appearance in younger children should be looked upon as

abnormal. More recently, it has been shown that granulosa cell tumors of the ovary are responsible for this condition. These cases bear watching and, if enlarged ovaries can be felt, surgery may be required.

When these conditions are associated with hirsutism and deepening of the voice, tumors of the adrenal gland must be suspected. Where growth has been impaired in these precocious children, x-ray of the long bones should be used to observe the epiphyseal line. If there is any tendency to closure, large doses of anterior pituitary growth hormone should be used to stimulate a more normal stature.

(5) *Vaginitis*—Gonorrheal vaginitis in children before puberty is well on its way toward being relegated to the definitely cured group. The work of Lewis¹ has brought out the theoretical basis for this cure. It was found with the use of estrogenic hormone the epithelium of the vagina was transformed into a thickened, mature, adult form. The infection being situated in the superficial layers of the vagina was easily thrown off. Te Linde² has published a fairly large series. This work has been corroborated by other groups. The hormone is given by vaginal suppository, mouth or injection, with good results (theelin, amniotin, estrone, etc.). More recently, cases treated at the Buffalo Children's Hospital have been receiving stilbestrol with the following results. One milligram of stilbestrol was given three times daily by mouth, and after seventy-two hours all smears and cultures were negative and all patients were discharged within a week. This is a marked improvement over the old method of treatment as well as being of benefit to the hospital in reducing the length of hospitalization. Te Linde¹⁴ has reported good results with stilbestrol suppositories.

Conclusions

The physiologic approach to the endocrine treatment of gynecologic conditions found at the time of puberty has been discussed. An attempt was made to show you the underlying cause of each condition so that your treatment would be directed toward it.

1. In amenorrhea of endocrine origin an attempt should be made to diagnose the deficient gland. Thyroid should be used in cases showing a lowered basal metabolic rate. In ovarian failure hormones extracted from the anterior lobe of the pituitary gland and pregnant mare's serum, both of which stimulate the ovary to more normal function,

should be used Pituitary gland failure presents a difficult problem

2 In menorrhagia and metrorrhagia, so-called juvenile bleeding or juvenile hyperplasia of the endometrium, overactivity of follicle hormone is the basic cause The Swiss cheese type of hyperplasia of the endometrium is found Hormones from the anterior lobe of the pituitary gland or pregnant mare's serum should be used to correct this dysfunction The cautious use of testosterone propionate (male sex hormone) is recommended only where other measures have failed

3 In dysmenorrhea, estrogenic hormone given throughout the month in adequate dosage should be tried In other cases corpus luteum given premenstrually may inhibit excessive uterine contractions Belladonna in some form may give equally satisfactory relief Stilbestrol should make its appearance on the market shortly and can be used as a more potent estrogenic substance It should be given throughout the month in adequate dosage

4 Precocity—Granulosa cell tumors of the ovary and tumors of the adrenal gland may be responsible for this condition Careful study may help to differentiate these cases Anterior pituitary growth hormone should be used if there is any attempt at closure of the epiphyseal lines leading to short stature

5 In vaginitis, the efficacy of estrogenic hormone cannot be questioned Stilbestrol however, because of its potency as well as its inexpensiveness, produces excellent results within a week.

6 In spite of the small amount of horse serum in the hormone produced from pregnant mare's serum, all patients should be skin tested for sensitivity to this substance—children, especially so, because of the greater incidence of injections for immunity In the anterior pituitary extracts, reactions from foreign protein may be encountered However, these are not of any serious nature

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PUBLIC HEALTH RESEARCH INSTITUTE OF NEW YORK CITY, INC

The setup of the new Public Health Research Institute of New York City, Inc, for which an appropriation of \$100,000 is included in the 1941-1942 budget of the Health Department, to be used exclusively for scientific research essential for the protection and the improvement of the health, safety, and welfare of the people of New York City, was announced by Health Commissioner John L. Rice on June 28

"Many public health problems that arise in this city," said Mayor F. H. LaGuardia in commenting on the Board of Estimate's approval of the contract between the city and the Research Institute, "are peculiar to this locality and scientific research and experimentation with regard thereto must be done locally In this the largest city in the World, disease may readily assume epidemic proportions and thus it is most essential that our municipal Health Department be fortified with the best research talent and facilities available The Research Institute will make that possible"

The Board of Directors of the Research Council has named as president David M. Heyman, a member of the banking firm of Adolph Lewisohn and Sons, president of the New York Foundation, and a member of the Board of Health David

Rockefeller was made vice-president, David Morse, secretary, and Edwin P. Chmura, treasurer

A Research Council has been set up by the Board and is headed by Thomas M. Rivers, M.D., director of the Hospital of the Rockefeller Institute for Medical Research Other medical men and scientists named to the Research Council are Eugene L. Opie, M.D., professor of pathology, Cornell University Medical College, Henry Clapp Sherman, Ph.D., professor of chemistry, Columbia University, Michael Heidelberger, Ph.D., associate professor of biochemistry of the College of Physicians and Surgeons, Columbia, George Baehr, M.D., clinical professor of medicine of the College of Physicians and Surgeons, Ralph S. Muckenfuss, M.D., director of the Bureau of Laboratories of the Department of Health, is a member ex officio

Neither members of the Board of Directors nor of the Research Council will receive salaries The Institute will be housed in the Health Department's Bureau of Laboratories which is located in the William Hallock Park Laboratory at the foot of East 15th Street, New York City

MESENTERIC CYSTS

Review of Literature, Genesis, and Classification Report of a Case

MARTIN J LOEB, M D , New York City

BETWEEN the two layers of the mesentery the lymphatics drain the intestines. Efferent vessels drain the chyle to the glands and eventually bring it to the receptaculum chyli, and there, too, the blood vessels carry the blood to and away from the intestines. Aberrant thyroid, ovarian, splenic, liver, etc., tissues, which may be found anywhere in the body, may also migrate and remain between the layers of the mesentery. In the developing embryo, retroperitoneal organs such as the wolffian body and duct, the müllerian body, and the germinal epithelium may leave remnants behind the peritoneum which become displaced forward between the two layers of the mesentery. Sequestrations from the vitelline duct or from diverticula of the intestines, which according to Lewis and Thyng¹ are of regular occurrence in the embryos of the pig, rabbit, and man, may be found in this mesenteric space. (The term "mesenteric space" in this paper is applied to the space between the two layers of the mesentery.) Ordinarily, this space is filled with some 50 to 150 lymph vessels, the superior mesenteric artery, and its numerous branches that supply the small intestine. Lymph glands as well as fatty tissue are also found in this mesenteric space. As the layers of the mesentery are separated, the space becomes larger. This happens when a cyst or new growth invades the locality. In addition to this, infections such as the echinococcus, the tubercle bacillus, etc., may invade the space. The echinococcus will form a cyst. Gould² states that tuberculous glands may caseate and form a cold abscess and, if the patient develops resistance, the abscess will become encapsulated and in this way form a mesenteric cyst.

From the connective tissue in the mesenteric space, solid tumors, mainly sarcomas, develop. Rausohof and Friedlander³ state that sarcomas arising from the mesenteric tissue are usually of the spindle cell variety, while sarcomas that develop retroperitoneally and are pushed forward between the two layers of the mesentery are composed of small or large round cells. Carcinomas may develop from the intestines and invade the space

or may develop from epithelial tissue remnants within the space.

The genesis of cysts and tumors is necessarily associated with the factors mentioned above. It is well to remember these facts in the classification of cysts and tumors of the mesentery. Mesenteric cysts are not surgical rarities. They are, however, of sufficiently uncommon occurrence to be of interest to the surgeon and physician.

Historical

Beneviene,⁴ a Florentine anatomist, in 1507 reported a mesenteric cyst that he found on the autopsy table. Subsequent to that, tumors or cysts of the mesentery were reported from time to time. All these were from autopsy or dissecting material.

In the early and middle part of the last century, Horsius, Tophius, Balonius, de Ruysch, and Morgagni from time to time reported cases found on the autopsy table.

Braquehay⁵ in his extensive monograph divides the history of mesenteric cysts into three periods.

- 1 From Beneviene to 1850, during which time all the reports were made from autopsy material.

- 2 From 1850 to 1880 these tumors were occasionally met on the operating table. The preoperative diagnosis of other conditions such as intestinal obstruction or ovarian tumors were made.

- 3 From 1880 on, when Pean, Tillaux, Millard, Merklen, and some German surgeons made these tumors better known in the medical literature. Operative cases were reported and a preoperative diagnosis was occasionally made. Tillaux and Millard described the clinical symptoms, Merklen described the pathology, and Pean described the surgical treatment that he used, which was that of marsupialization. It is interesting to note that Panas⁶ in 1852 reported a case of mesenteric cyst which he cured by puncture.

Ney and Wilkinson⁷ suggested a fourth period commencing in 1900, at which time Dowd⁸ published his paper and promulgated the theory that these cysts are embryonic in origin.

TABLE—DIAGRAM

(1) Embryonic Cysts	(A)	Enterostomas of intestinal origin from (1) Sequestration during development (omphalomesenteric duct or embryonic diverticula) (2) Persistent Meckel's diverticulum	Either of these by the extravasation of lymph may become (1) A chylous cyst. By extravasation of blood (2) A hematogenous cyst By malignant degeneration (3) A malignant cyst
	(B)	Embryomas spring from retroperitoneal organs within mesenteric space (1) Wolffian duct and body (2) Müllerian body (3) Germinal epithelium	
(2) Teratomatous Cysts	Arise from misplaced ovarian tissue in the mesenteric space		
(3) Infectious Cysts	Caused by (1) Echinococcus (2) Tubercle bacilli (3) Encapsulated abscess between the two layers of the mesentery		

Frequency

It is difficult to give a true estimate of the frequency of mesenteric cysts, since a number of the reported cases were not sufficiently clear and detailed to include them definitely among the number

Augagner⁶ in 1886 reported 90 cases of mesenteric tumors of which 18 were cysts. Arekion⁹ in 1891 referred to 81 reported cases of mesenteric cysts. Braquehay⁶ in 1892 collected 23 more cases and stated that solid tumors are about twice as frequent as are mesenteric cysts. Judd (quoted by Roller¹⁰) reported 25 cases of mesenteric tumors in 820,000 admissions to the Mayo Clinic, 8 of the 25 were cysts. It is interesting to note that both Judd and Braquehay report the same proportion of mesenteric cysts to mesenteric tumors. The Children's Hospital of Los Angeles reported 3 cases in three and one-half years out of a total of 12,425 admissions.¹⁰

Our case is the only one that occurred in the Bronx Hospital out of a total admission of 105,000 cases. Because of the rarity and the capricious distribution of these tumors, some surgeons may never meet a case while others may have several. The *Index Medicus* for the last several years, lists references to about 8 to 10 case reports a year. With this as an index and Braquehay's report of 1892 as a base, there should be about 550 to 600 cases reported up to now.

Definition

A true mesenteric cyst occurs between the two layers of the mesentery or beneath the serosa of the intestine. It is not malignant, dermoid, or parasitic. It does not arise from any normally placed retroperitoneal organ or from embryonic rests, although it may have grown and pushed its way into the mesenteric space.

Genesis and Classification

Tumors or cysts of the mesentery must necessarily originate from the structures either normally or abnormally situated in the mesenteric space. Numerous classifications have been made beginning with Portal,¹¹ Braquehay,⁶ Moynihan,¹² Dowd,³ Niosi,¹³ and many others. These classifications have succeeded in causing confusion in the mind of the reader. The theory of Dowd at the present time is generally accepted and falls in line very well with Dowd's classification. It seems to me that this classification with certain additions or modifications should serve to convey to the reader the conception of genesis and appearance of these cysts.

Dowd classifies mesenteric cysts into (1) embryonic cysts, (2) hydatid cysts, and (3) cystic malignant disease.

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Using the classifications of Dowd and Niosi as a basis and taking into consideration Dowd's view that chylous or hematogenous cysts are preformed cysts in which chyle or blood accumulated, I constructed a table which I believe is a simple classification and in all possibility a true one (see above).

Cysts are formed by the retention of the secretion within these structures. Des Gouttes and Sicord¹⁴ report a case in which the cyst was lined by intestinal mucosa and seemed to be of intestinal formation. Swartley¹⁵ also reports such a case. That the cellular structure of cysts vary is no argument to discard the theory, since inflammatory conditions to which all tissue is heir may change the epithelium lining to scar tissue (Swartley). Niosi¹³

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collected 5 cases of cysts in the mesenteric space arising from urogenital embryonic tissue. Higgins and Lloyd¹⁶ state that a teratomatous cyst was never found in a male patient. Ney and Wilkinson⁷ noted that all mesenteric teratomas reported have occurred in women. The conclusion to be drawn therefrom is that these arise from misplaced ovarian tissue. Gould² reports several cases of mesenteric cysts which he attributes to encapsulated tubercular abscess.

Location

Lewis and Thyng¹ found thirty-three "pockets" or diverticula in an embryo of 23 mm. In an older embryo they found forty-eight such pockets. These diverticula in the embryo occurred in the small intestine.

Wallmann (quoted by Higgins and Lloyd¹⁶) found thirty-seven diverticula in a piece of small intestine 48 cm. long, and thirty of these were between the layers of the mesentery. He also found some present in the large intestine. The duodenum is perhaps the commonest location, and it is said that diverticula occur there frequently. Since the intestinal diverticula do occur in the human embryo, they might become separated from their origin and form true mesenteric cysts. If a cyst should develop from any of these sequestered embryonal diverticula, they might be found near any part of the small intestine or even the large intestine.

If the cyst develops from the vitelline duct or Meckel's diverticulum, the cyst arising from the former will be high up in the intestine while the latter would be in the mesenteric space near the lower part of the ileum. Cysts arising from urogenital embryonic tissue may be found anywhere in the mesenteric space, usually, however, in the region of the ileum.

Diagnosis and Symptomatology

Braquehay,⁵ as was mentioned at the beginning of this paper, in his historical division of mesenteric cysts, designates the third period as the beginning of preoperative diagnosis and operative surgery. If diagnoses were made then on these symptomless cysts, our surgical ancestors were much better than we are. Since the diagnosis must depend upon symptoms and since symptoms are so indefinite and x-ray findings practically negative, a diagnosis in the early stages is impossible. Later on when the tumor causes such complications as intestinal obstruction, peritonitis, and hemorrhage, the symptoms of the complication will mask the original cause and one intervenes

because of the complication. Before any complication arises, however, one may be able to make a diagnosis of a cyst within the abdominal cavity if the mass is palpable. But then there would be other symptoms such as pressure symptoms to call attention to the mass.

The symptoms will depend upon the size of the tumor, the location of the tumor, and the pressure it exerts on the intestinal canal and on the surrounding tissues and blood vessels.

Objective Signs

The objective signs in the later stages will be (1) a tumor located in the mid-abdomen, which is movable and cystic and surrounded by tympanic areas. (2) X-ray. Occasionally the tumor will show a shadow on the x-ray. If this is contrasted with a barium meal, one may make a diagnosis. (In our case our x-ray resident, Dr. Goldblum, outlined a shadow on the plate preoperatively. We did not, however, do a gastrointestinal series.)

Symptoms

Symptoms are those of the complication. If there is a partial intestinal obstruction, it will cause a colicky pain, paroxysmal in character, and vomiting. If the intestinal obstruction is acute, the diagnosis will be made by the symptoms of the obstruction and the x-ray plate will show gas in the small intestine. (In our case the x-ray plate showed gas in the small intestine.)

Complication

(1) Intestinal obstruction. The tumor may grow around the intestinal cavity and strangle the gut within its embrace causing a subacute or acute intestinal obstruction. This occurs in 40 to 50 per cent of the cases.

(2) Peritonitis may occur either as a sequel to intestinal obstruction or because of rupture of the cyst into the peritoneal cavity.

(3) Hemorrhage, sloughing of a blood vessel within the cyst cavity, may cause a fatal hemorrhage within the cyst.

(4) Torsion of the cyst.

(5) Incarceration of the cyst within pelvic cavity.

Treatment

a. Enucleation is the treatment of choice. This, however, cannot always be done.

b. If the intestines are strangled within the cyst, resection of the cyst with the stran-

gulated intestines should be done with a side-to-side or an end-to-end anastomosis

c Marsupialization is the treatment for patients who are poor risks and in whom the cyst cannot be attacked in any other way. The mortality varies. It is the highest in cyst and intestinal resection, where it reaches from 35 to 50 per cent.

Case Report

E. B., a white girl, aged 14, was admitted to the hospital on January 13, 1938. Her chief complaints on admission were recurrent vomiting and abdominal pain for five days. The character of the pain was sharp, colicky, and intermittent, and was localized to the center of the abdomen. After an emetic attack the pain would be localized to the left upper quadrant. She had bowel movements and enemas that yielded good fecal material. There was no history of blood or mucus in the stools or of an infectious process. Her menstrual history was negative.

A physical examination revealed a normally developed female child who did not appear acutely ill, in fact, between attacks she seemed quite at ease. Her heart and lungs were negative. The abdomen was distended but not markedly so. There was a dull percussion note over the mid-abdomen. No rigidity or distinct masses were palpable. Eye, ear, nose, and throat were negative except that there was no conjunctival reflex. Her blood pressure was 124/80. The temperature ranged between 99 to 100 F. The general appearance of the patient was that of a shy girl of introvert personality.

Laboratory Data—Her urine was negative on two occasions. The blood chemistry was within normal range. Icteric index was 147. There was a direct delayed van den Bergh reaction. The indirect van den Bergh test showed 12 units per hundred cubic centimeters of serum. The white blood count was 16,000, with 70 per cent polymorphonuclears and 11 band forms. The rest was normal.

An x-ray examination demonstrated the distention of small bowel with gas. The large bowel was collapsed. A faint shadow on the plate the size of a grapefruit was interpreted as an intra-abdominal mass. A diagnosis of subacute intestinal obstruction of unknown etiology was made.

The patient was given 5 per cent glucose solution intravenously and repeated small enemas. Wangansteen drainage (small bowel), as well as local measures such as rectal tube, turpentine stupes, gastric lavage, etc., were given to relieve distention. Enemas gave good results. Gastric lavage yielded some coffee-ground material. There was no occult blood in gastric contents nor was there any fecal material present. The medical treatment was given in the hope that it might help the intestinal obstruction, if it was caused by a kink, to adjust itself.

Since no improvement was noted, the patient was operated on January 17, 1938, four days after admission to the hospital.

Operation Inner Right Rectus Incision—On opening the peritoneum a great deal of serous fluid was found, which was suctioned. A large mass was present in the abdomen and about 6 inches of the small intestine was entangled and imbedded in this mass. The proximal part of the small intestine was completely occluded and distended. The distal end was collapsed. The large, yellow, soft mass, having a cystic consistency, sprang from the mesentery. The entire mass was delivered outside the abdomen. The intestines were clamped about 6 inches away from the mass and resected with the cautery. The mesentery, which was hemorrhagic and congested, was also resected on either side of the cyst. The intestines were closed by inverted sutures and two layers of Lembert's sutures. A side-to-side anastomosis was then done. Several sutures were inserted in the mesentery to bring it together. A drain was inserted to the anastomosis and the abdomen was closed in layers.

Postoperative Diagnosis—Intestinal obstruction caused by mesenteric cyst.

Postoperative Treatment—Continuous Wangansteen drainage for decompression of the bowel and slow intravenous drip of 5 per cent glucose solution were instituted postoperatively. The child made an uneventful recovery. She showed an immediate postoperative elevation of temperature to 101.4 F for two days. On the sixth postoperative day the child moved her bowels spontaneously and was discharged on February 2, 1938, with the wound healed, her bowels moving regularly, her temperature normal, and a regular ward diet being maintained without embarrassment.

A one-year follow-up reveals the patient in good condition and not presenting undue symptoms.

Pathology—Gross specimen consists of two separate loops of ileum, measuring 32 and 15 cm in length, respectively. The first of these consists of a U-shaped loop of bowel, connected and maintained in shape by mesenteric adhesions. From this area there project six or seven cysts, the largest 8 cm in diameter and the smallest 2.5 cm in diameter. On opening them we found some distended with chylous fluid and some with a yellowish oily fluid. There are found two cysts, one on each side of the mesentery, that connect with each other and another similar set of two. The other three or four cysts are single and are located on either side. The surface of one of the cysts is covered with multiple thrombosed veins. For a distance of 12 cm the ileum is dilated, the wall is thin, and the valvulae conniventes are absent and sharply demarcated from the remainder of the intestine. At both ends of this portion of the ileum the intestine is normal in size and ap-



FIG 1 Unopened mesenteric cysts with attached ileum



FIG 3 Wall of the cyst consists of vascularized connective tissue and fat, the latter exhibiting perivascular round-cell infiltration



FIG 2 Large mesenteric cyst opened showing the smooth lining. There is no connection with the lumen of the bowel

pearance, although at one end the ileum appears to be sharply twisted on itself

The second portion of ileum appears normal except for a 1.5-cm blackish brown area extending from the mucosa to the serosa

Microscopic section taken through the wall of the cyst exhibits a vascularized connective tissue and fat, with a focal area of perivascular round-cell infiltration.

It is apparent that the specimen described above belongs to the chylous type of mesenteric cyst. These may be large, single, and multicystic or small and multiple. The contents may consist of clear fluid, chyle, or fat. It is my im-

pression that this type of cyst belongs to the group of lymphangomas. The absence of smooth muscle fibers definitely identifies this case as belonging to the chyle cyst group rather than enteric cyst. (See Figs 1, 2, and 3 *)

Comment

I saw this child in consultation with Dr Gurvitch two days before admission to the hospital. My first examination at home revealed no distention or tenderness of the abdomen. No mass was felt and the abdomen was flaccid and apparently normal. The child expelled gas by rectum. Because of the peculiar psychologic makeup of the child, the anesthesia of the conjunctiva, etc., I was of the opinion that there was a possible hysterical element in the picture.

After the second day the distention appeared, the expulsion of flatus diminished, the vomiting continued and, above all, the x-ray revealed gas in the small intestine. During all this time the child did not appear to be acutely ill. It is significant that the percussion of the distended abdomen was dull rather than tympanic, and as time progressed there was a resistance to the touch if not real rigidity.

* I am indebted to Dr Joseph Felsen for assistance in preparing the illustrations.

Summary

1 A résumé of literature and discussion of the genesis of cysts are hereby appended

2 The classification of Dowd and Niosi is newly interpreted

3 A case of a cyst within the mesenteric space is reported

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MEDICAL AID TO CHINA

American financial help has assisted in the creation in China of one of the most remarkable medical relief corps existing in any warring country, according to Dr Donald D Van Slyke, president of the American Bureau for Medical Aid to China.

Scores of mobile medical units that are situated close to the Chinese fighting lines, and that can be dismantled and moved within an hour's notice, form the heart of the Chinese Red Cross Relief Corps. The medical staff attached to these medical units totals 2,800, and of this number about 1,200 men and women serve as stretcher bearers.

The Chinese Red Cross Medical Relief Corps was organized by Scottish-trained Dr Robert K S Lim, who served for three years with the Indian Medical Unit in France during the first World War.

When Dr Lim joined the Red Cross at the outbreak of the war, soldiers wounded by bullets or shrapnel were dying before medical attention could reach them and as many died from malnutrition as from bullets. Dr Lim has changed that picture. He organized the Medical Corps into mobile operating, nursing, and preventive units. The preventive unit carried out a health and antiepidemic program, sterilizing water, setting up delousing plants, inoculating soldiers, and civilians alike against cholera, malaria, typhoid. Operating and nursing units worked close behind the front lines, so that wounded soldiers had first-aid care before starting their journey to base hospitals—often a stretcher journey many days away because of the existing roadless areas. Rest stations were set up every ten miles to provide shelter, food, water, and fresh dressings for wounds.

In the spring of 1938 came an urgent cable from Dr Lim, asking for 4,000,000 doses of vaccine to fight an outbreak of cholera. Within twenty-four hours, funds had been raised to purchase a million doses from an American firm in Hongkong. Delivery of the full amount was completed in three weeks. The epidemic was

checked. As a result of this practical American sympathy and aid, cholera in China last summer was almost nonexistent.

Since then, the American Bureau has sent tons of quinine to Dr Lim and to the Chinese Red Cross and, more recently, has sent quantities of atabrine, the new malaria remedy. To date, about 85 per cent of all his medical supplies and more than 90 per cent of his ambulances and supply trucks have been supplied by overseas Chinese and by donations from abroad.

The American Bureau for Medical Aid to China has sent 159 ambulances and has provided gasoline and spare parts to keep them running.

One of the Medical Corps' most interesting activities has been encouragement given to farmers to remain on their farms growing crops even though these farms lie close behind the fighting zone. In many sectors, half the food for the Chinese soldiers is being produced in the war area itself.

"It is almost certain," said Dr Van Slyke "that the invader counted on a high casualty rate among the Chinese because of inadequate medical attention. The Japanese cannot afford to have more than 1,000,000 in China, for they cannot take men out of industry or away from the Russian border. So, you see, Dr Lim's work in caring for the wounded Chinese soldier, and in sending him back into the fight is an upsetting factor to the Japanese."

"The Chinese death rate has been whittled down by other American aid in the form of ambulances, vitamins, and trucks for evacuation work. In speeding such help, the United China Relief has done much to sustain Old China long enough for Dr Lim and others like him to create the new Free China."

Beginning July 1, The American Bureau for Medical Aid to China, through United China Relief, will send \$5,000 a month to China, to support Dr Lim's training schools and orthopedic centers, and to supplement the contributions of the American Red Cross.

Crowded living conditions, mounting prices of necessities, increased mental, emotional and physical strain—inevitable byproducts of in-

dustrial defense activities—are factors dangerously favorable to the increase and spread of tuberculosis.—Kendall Emerson, M D

EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

WILLIAM L. WEINTRAUB, M D , Paterson, New Jersey

THE most important single feature in the diagnosis of pulmonary tuberculosis is to bear the disease in mind and remember its frequency. In the age group of 15 to 45 years it continues as the leading cause of death. According to conditions in 1930, the estimated frequency is that, of 1,000 white men born, 42.5 will eventually die of tuberculosis, and, of 1,000 negro men, 96.7 will die.

In spite of this great frequency most of the patients already have extensive disease when first diagnosed. This represents a challenge to medicine. The key to the solution probably lies in the hands of the general practitioner. He sees all the patients.

We know that a definite number of those who are ill proceed to advanced disease rapidly, however, this is not true of the majority and is certainly not the rule. Symptoms may be absent even in the presence of considerable active pulmonary tuberculosis, this again is not true of the majority. The patients in whom the above is true, of course, cannot be diagnosed or even suspected earlier by the general practitioner but must, if at all, be discovered through popularization of public health procedures, such as contact examinations and periodic examinations of groups suggested by our knowledge of the occurrence of the disease. There remains a goodly percentage, in fact the majority, of morbidity which we believe is diagnosable much earlier than is being done at present.

There are four main procedures ordinarily utilized in the diagnosis of disease, and tuberculosis is no exception. (1) history, (2) physical examination, (3) laboratory procedures, and (4) x-ray examination.

The history is always important. A history of contact is especially important. The symptoms may be divided into two groups: (1) constitutional or general symptoms that occur because of absorption of focal products and (2) focal or local symptoms that occur because of the local irritating or destructive effects of the lesion. Under the general group may be listed tired feeling, weakness, loss of weight, chills, fever, sweats, loss of appetite, stomach disturbances, nervousness, increased pulse rate, pallor, etc. Under the local group may be listed cough, sputum, blood-spitting,

pulmonary hemorrhage, chest pain, pleurisy with effusion, hoarseness, aphonia, difficulty in swallowing, rupture of the lung, rectal abscess, alternating diarrhea and constipation, dyspnea, etc. The modes of onset are various. Pulmonary tuberculosis may begin with any one of the above-named symptoms or any possible combination of two or more. In point of time the onset may be insidious or acute. It may begin as a pneumonia, indistinguishable clinically from any other pneumonia, or as a grippe, influenza, common cold with or without fever, etc. There is nothing in the symptomatology which spells tuberculosis. The constitutional symptoms may be found in any constitutional disease. The local symptoms may be found in any disease that can produce similar local irritation or destruction. The history can point definitely to tuberculosis, can be highly or mildly suggestive, but cannot of itself establish either the presence or absence of clinical pulmonary tuberculosis.

Physical examination of the patient is relatively of little value in ruling out the possibility of pulmonary tuberculosis. The general findings such as wasting, emaciation, flushed cheeks, fever, rapid pulse, low blood pressure, etc., may constitute a clear-cut clinical picture but assuredly tax no one's diagnostic acumen in the presented patient. They are all late signs, and the symptomatology in practically all instances will already have directed attention to pulmonary tuberculosis as the provisional diagnosis. There may be considerable pulmonary involvement with no positive chest findings. The inability to elicit abnormal chest physical signs certainly does not diagnose the absence of pulmonary tuberculosis and is of no great value in ruling out the disease in a given patient. Positive findings, especially cavernous signs or persistent moist rales over the upper third, clearly indicate serious chest disease. However, from physical examination alone the probable pathologic picture cannot at all be prognosticated with any degree of accuracy except in an extensive destructive disease that constitutes no diagnostic problem. Patients with visual evidence of pulmonary involvement, such as rib thatching, contracture, scoliosis, again present no diagnostic problem. Positive chest signs do not diagnose

tuberculosis as the etiology. They may make it probable or most likely, but more evidence than that is procurable and warranted to make a diagnosis such as pulmonary tuberculosis. The same physical signs may occur with active and inactive or healed involvement.

Laboratory methods ordinarily employed are examination of the sputum for tubercle bacilli and the tuberculin test. Limiting the scope of this presentation to pulmonary tuberculosis leaves out of consideration the examination of other body tissues and secretions as in extrapulmonary lesions. The tuberculin test is not a test of active disease in its clinical sense. A positive reaction shows the sensitivity of the reactor to tuberculo-protein and indicates that the individual harbors within his tissues viable tubercle bacilli. Such an observation does not indicate that the individual has clinical tuberculosis or that existing symptoms are due to tuberculosis. A negative reaction with certain reservations is reasonable assurance that the individual is not sensitive to tuberculo-protein and that his tissues are free of tubercle bacilli. In a negative fashion this test is valuable and is not sufficiently employed by the general practitioner. Its most important field of use, however, is in children and the public health practice, a subject by itself and beyond the intended scope of this article. The sputum may be positive very early but is usually a late manifestation, and the diagnosis should be made in most cases long before the sputum is positive. Examinations should be made daily for several days, utilizing the morning sputum. A negative sputum is, of course, of no value by itself in ruling out pulmonary tuberculosis. However, a good diagnostic point is that given a patient with suggestive clinical symptoms who raises considerable purulent sputum that on repeated examination, including concentration tests, is persistently negative it is advisable to seek another etiology for the symptoms, since they are most likely not due to pulmonary tuberculosis. There are occasional exceptions, and also the above presupposes atypical or inconclusive x-ray findings. Examination of the sputum is beyond a doubt often a sadly neglected procedure, and its increased employment would diagnose many cases of pulmonary tuberculosis much earlier than is being done at present. Sedimentation tests and blood counts have their place but are not of great importance in the ordinary case from the standpoint of the general practitioner and early diagnosis.

X-ray examination has revolutionized chest

diagnosis. In fact, much of the modern pathologic concept of pulmonary tuberculosis has been developed through the study of serial x-ray films and could have been demonstrated in no other fashion. Living tissue pathology is observed through its various changes by serial films. X-ray alone shows the extent of involvement and, what is more important, usually the type of involvement. The x-ray is by no means infallible. There remains much that is not known, and there are lesions in which the ordinary film is of little value. Even films that are produced with the best of technique and visualize all the lesions present which are roentgen-demonstrable have to be interpreted. In general, a persistently negative chest x-ray fairly well eliminates pulmonary tuberculosis from consideration. It is inadvisable in any given patient to rule out pulmonary tuberculosis without a chest film. X-ray will often show lesions before there are any signs or symptoms and, in the presence of symptoms, will show the lesion in all cases to all practical purposes when the symptoms are due to pulmonary tuberculosis. Early tuberculosis that is active and clinically in need of therapy may exist with no signs or symptoms, these cases obviously are diagnosable only by x-ray.

In view of the preceding from the standpoint of the early diagnosis of pulmonary tuberculosis, the general practitioner with a full realization of the concepts outlined is faced with the problem of which patients he should advise to have their chests x-rayed. Whenever there is any suspicion of pulmonary tuberculosis a chest x-ray should be insisted upon. The presence of any symptom or sign that is unexplainable with any degree of certainty and may be found in pulmonary tuberculosis should excite suspicion. The following, when otherwise unaccountable, are examples: pulmonary hemorrhage or minor blood-spitting, tired feeling, weakness, loss of weight, afternoon fever, night sweats, cough, with or without sputum, which persists for more than six weeks, hoarseness, persistent rales over the upper third of the chest, and pleurisy with effusion, especially in young individuals. Pneumonia that cannot be typed or any atypical pneumonia regardless of the disappearance of clinical findings should excite suspicion. Rectal abscess in the absence of any explanation is suspicious, it is probably wise to x-ray the chest in every such rectal case. A physician who bears in mind the existence of pulmonary tuberculosis will also have in mind that "a cold may not

be a cold." Coughs that follow colds in the head are usually not serious, and all symptoms disappear in from two to six weeks. Afebrile ambulant cough of not more than two months' duration which has followed a cold in the head is usually evidence of a self-limiting subacute bronchitis and is not serious. Afebrile or subfebrile ambulant cough and pleural pain which are not preceded by an infection of the upper part of the respiratory tract are quite likely to be serious. An exception is pertussis, which is a primary bronchitis. Most patients who consult a physician because of ambulant coughs do so because they fear the possibility of serious disease, i.e., tuberculosis. In this group of ambulant afebrile coughs of short duration, tuberculosis is certainly the most common disease that is serious and threatening. The problem of its presence or absence can be solved quite simply by an x-ray film; also, there is no other way of solving it. The x-ray is not the whole answer to early diagnosis of pulmonary tuberculosis, but in all save a rare instance the x-ray will reveal a tuberculous lesion long before it produces symptoms, long before it produces the slightest physical signs, and long before the sputum is positive. This means that physical examinations, sputum examinations, temperature records, weight charts, sedimentation tests, blood counts, and everything else are of no value in ruling out the presence of pulmonary pathology and that in the vast majority of cases the diagnosis of early tuberculosis must be made and can be made by the x-ray.¹ The absence of significant findings in history, physical examination, and laboratory does not rule out tuberculosis, and their presence cannot diagnose tuberculosis but merely suggest its possibility or probability. The last mentioned, of course, excludes the finding of a positive sputum on the positive side and the finding of a persistently negative tuberculin test to lower dilutions on the negative side, which, however, could raise considerable controversy as to its acceptance as fact and would not, in the presented case, be ruling out other pulmonary pathology that may be present. Even though it is nontuberculous, it is

of equal importance that it be demonstrated if present.

Does this mean that everyone with complaints referable to the respiratory system should have an x-ray of the chest? There is only one possible reason for not proceeding on this principle and that is the expense that it would be to the patients. No one any longer dares to treat an injury to a bone or joint without an x-ray. The same should apply to diseases of the chest, for, whereas a small missed fracture may give slight deformity or disability, a missed early tuberculosis may give years of chronic illness and often death. Granted for the moment that it is not feasible economically, some way of distinguishing between those with ambulant coughs who are little likely, and those who are quite likely, to have tuberculosis or other serious lung disease may render useful service. The most common cause of ambulatory cough of short duration is subacute bronchitis secondary to infections of the upper part of the respiratory tract. With no contact history, no suspicious antecedent symptoms, an actually existent previous cold in the head, no hemoptysis, no pleural pain or persistent fever with the cough—one is probably safe in not x-raying. It is wise to give definite advice concerning symptoms and to demand a return. For example, "In all probability your cold has left you with a mild bronchitis that will go away in a short time. To be sure that nothing more serious is present an x-ray will be necessary. It is a good thing for everyone to have an x-ray of his chest occasionally, and you can either have one now or, if you wish, dispense with it and take it later only if the cough persists or some unexpected symptoms develop. Let me know if you develop fever, expectorate blood, or have any pain, and in any case come in to see me in two weeks."¹

X-ray is the *sine qua non* in diagnosis of diseases of the chest

400 Broadway

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1. Head, Jerome R. Dis. of Chest 3 No 10, 12 (Oct.) 1937

THE CLINICAL SENSE

You may be skilled in the sciences, facile with chemical, physical, biologic, and many other techniques, you may know the physical manifestations of many diseases, you may contribute to the store of knowledge and be a medical scientist, but you will not be a physician until you have developed what has been called a clinical sense.

This is an acquired faculty based subtly but soundly on a broad knowledge, a retentive memory, a discriminating and orderly habit of mind, combined with an understanding of mankind.—Charles R. Austrian, M.D. *The Care of the Patient*, New England J Med 223 695 (October 31) 1940

PULMONARY TUBERCULOSIS IN NURSES

MILTON R. LOURIA, M.D., Brooklyn

IN RECENT years the subject of pulmonary tuberculosis in nurses has been accorded considerable attention by a number of investigators. Communications of interest and importance have been written by Heimbeck,¹ Geer,² Amberson and Ruggins,³ Ornstein and Ulmar,⁴ Ross,⁵ Jones,⁶ Myers, Diehl, and Lees,⁷ Soper and Amberson,⁸ and others. Most of these authors have concluded that the nursing of tuberculous patients entails a definite health hazard as demonstrated by a higher incidence of tuberculosis in nurses (particularly student nurses) than is encountered in a similar age and sex group not engaged in tuberculosis nursing.

It is not the purpose of this communication to review the literature on this subject. The present communication is designed to add further data gathered from a four-year study in a large general hospital with a tuberculosis service. An attempt will be made to analyze the development rate of clinical tuberculosis in the nursing group and to offer suggestions to decrease this rate.

Steps in the Process of Tuberculous Infection in Nurses

The careful study of nurses by means of frequent x-ray examinations and tuberculin tests has afforded an admirable opportunity for following the incidence rates of both primary infection and superinfection. This is particularly true among student nurses whose confinement to the hospital grounds throughout a course of training makes the chance of contact infection in the hospital small. Among the factors leading to the course in training, tuberculin-negative and the tuberculin-positive. One is thus able to obtain information about the relative prevalence of clinical tuberculosis in these groups. Furthermore, valuable data are obtained in regard to the time involved in the development of the infection, as evidenced by the appearance of a positive tuberculin test, and the time element between negative and positive x-ray films.

Observations have been recorded on the conversion of the tuberculin test from negative to positive in student nurses during their course in training. Heimbeck¹ found that

the student nurses at the General Hospital in Oslo, an institution with a bed capacity of 2,000 and a usual census of 300 to 400 cases of tuberculosis, were 48 per cent positive to tuberculin on admission and 100 per cent positive by the end of their three-year course. Myers, Diehl, and Lees⁷ reported that a group of student nurses were 35 per cent tuberculin-positive on admission and 95 per cent positive at the completion of their training course. The latter report is rendered more illuminating by contrasting the results of tuberculin testing in the School of Nursing with the testing of a comparable group of young women in the School of Education where there is no special exposure to tuberculosis. The latter group showed only a 4 per cent increase in positive reactors between the time of admission and the completion of the course.

Studies of the above type demonstrate clearly the first step in the process of infection—the development of the primary infection in previously uninfected nurses as a result of exposure to the tubercle bacillus. That such exposure is directly attributable to the occupational activity is also demonstrated by comparative figures with a group not similarly engaged.

The second step in the process of infection concerns the development of parenchymal reinfection tuberculosis. At this point we encounter two schools of thought: the one holds to the theory of endogenous reinfection, the other, to the theory of exogenous reinfection. It is not intended at this time to enter into a lengthy discussion of the merits of each of these schools of thought. However, it would seem pertinent to emphasize several points. In the first place, there is scant evidence to demonstrate that any significant number of cases of reinfection tuberculosis develop from the implantation of bacilli that have escaped from calcific foci in the lung or in the lymph nodes. Although viable bacilli have been demonstrated in such foci, histologic examination strongly suggests the difficulty of escape of bacilli from these areas. It has also been shown that a shortening of the primary focus may take place with actual progression of the disease from this region, but again it must be pointed out that such occurrences are admittedly rare. On the other hand, the evidence of a tuberculin-positive state

be a cold" Coughs that follow colds in the head are usually not serious, and all symptoms disappear in from two to six weeks. Afebrile ambulant cough of not more than two months' duration which has followed a cold in the head is usually evidence of a self-limiting subacute bronchitis and is not serious. Afebrile or subfebrile ambulant cough and pleural pain which are not preceded by an infection of the upper part of the respiratory tract are quite likely to be serious. An exception is pertussis, which is a primary bronchitis. Most patients who consult a physician because of ambulant coughs do so because they fear the possibility of serious disease, i.e., tuberculosis. In this group of ambulant afebrile coughs of short duration, tuberculosis is certainly the most common disease that is serious and threatening. The problem of its presence or absence can be solved quite simply by an x-ray film, also, there is no other way of solving it. The x-ray is not the whole answer to early diagnosis of pulmonary tuberculosis, but in all save a rare instance the x-ray will reveal a tuberculous lesion long before it produces symptoms, long before it produces the slightest physical signs, and long before the sputum is positive. This means that physical examinations, sputum examinations, temperature records, weight charts, sedimentation tests, blood counts, and everything else are of no value in ruling out the presence of pulmonary pathology and that in the vast majority of cases the diagnosis of early tuberculosis must be made and can be made by the x-ray.¹ The absence of significant findings in history, physical examination, and laboratory does not rule out tuberculosis, and their presence cannot diagnose tuberculosis but merely suggest its possibility or probability. The last mentioned, of course, excludes the finding of a positive sputum on the positive side and the finding of a persistently negative tuberculin test to lower dilutions on the negative side, which, however, could raise considerable controversy as to its acceptance as fact and would not, in the presented case, be ruling out other pulmonary pathology that may be present. Even though it is nontuberculous, it is

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from the general population, it would seem of interest to disregard for the moment all cases among the student nurses except those whose disease was so advanced that detection under all circumstances would have been unavoidable. This would also exclude from consideration any minimal cases that might have developed into advanced types of tuberculosis. Of the 20 cases, 3 had cavities requiring collapse therapy and another had bilateral pleurisy with parenchymal involvement. On the basis of these cases alone, the development rate of tuberculosis is in excess of that found in a comparable group not engaged in an occupation with a definite and significant exposure to tubercle bacilli. This observation is in agreement with that noted by Jones⁸ and others.

Pulmonary Tuberculosis in Graduate Nurses

In a group of graduate nurses there were 27 cases of clinical tuberculosis with 3 deaths during the four-year period. One of these nurses had an antecedent tuberculous node in the neck but had repeated negative chest films prior to the onset of her pulmonary lesion.

An analysis of the occupational history of the graduate nurses who contracted tuberculosis brings to light the important fact that of the 27 cases, 20 or 74 per cent were in active contact with tuberculous patients on the medical or tuberculosis wards. If we pause to consider that only 233 of the 950 graduate nurses were regularly employed on the medical and tuberculosis services, we find that 24.5 per cent of the graduate nursing group contributed 74 per cent of the cases of clinical tuberculosis. This means that the graduate nurse who works on wards where patients with tuberculosis are cared for has nine times as great a chance to contract the disease as the graduate nurse employed on wards where only occasional cases of tuberculosis are found.

The statistical data on the graduate nurse group have been compiled with as much accuracy as possible. However, it is desirable to make one modifying comment. Although it is a general practice to maintain graduate nurses on the same service year after year, a certain amount of shifting to different services must of necessity take place for administrative purposes. The figure mentioned above—that 24.5 per cent of the graduate nursing group contributed 74 per cent of the cases of clinical tuberculosis—must therefore be considered as having a certain incalculable

degree of error. However, I feel that the inherent degree of error in the figures is not of sufficient degree to offset the definite statistical implication which the figures carry.

The statistical data given above are of importance in consideration of the pathogenesis of reinfection tuberculosis. If such forms of tuberculosis were due to endogenous reinfection, one would expect the development rate of the disease to be the same in nurses, regardless of the services on which they were employed. Certainly the nurses on surgical or obstetric wards work just as hard as those on medical or tuberculosis services. And still the statistics leave no doubt that the actual exposure to exogenous infection is the all-important factor that accounts for the incidence rate of clinical tuberculosis.

Time Interval Between Admission to the Nursing School and Development of Tuberculosis

In each case of a student nurse who developed clinical tuberculous disease, the time interval for the development of the disease has been calculated. It seems hardly necessary to detail the figures for each case. The shortest period of time between admission to the nursing school and the discovery of clinical tuberculous disease was seven months, the longest period was thirty-one months. The average period of time in all 20 cases was nineteen and one-tenth months.

Time Interval Between Negative and Positive X-Rays

In the group of student nurses who showed evidence of tuberculous disease with positive x-ray findings, the interval between the last negative plate and the first positive plate has been computed. The reason for making this calculation is in order to obtain data on the time interval required to show the development of definite tuberculous disease on the x-ray film. It is obvious that the calculated interval is a great deal longer than the actual time needed for such changes. However, it suffices to indicate the maximum time that should be permitted to elapse between routine x-ray films in order to discover the disease at the earliest possible time.

The longest recorded interval was twelve months between a negative and positive plate, although it must have been an error of omission that another interval routine plate had not been taken since an attempt was made to take plates at intervals of six months. The average time in all cases between the last

vironment that has been proved capable of causing primary infection in almost all negative reactors must of necessity expose her to the same dose of bacilli that have been proved capable of causing primary infections. If reinfection tuberculosis is caused by the implantation of bacilli in previously sensitized tissue, why is it necessary to invoke the problematic escape of bacilli from primary or old fibrotic foci when we have ample evidence of the same organisms entering the respiratory system from without? The weight of evidence would certainly seem to favor the school of thought that considers most cases of reinfection pulmonary tuberculosis as being caused by the aerogenous, exogenous implantation of bacilli.

Material for Study

The Kings County Hospital is a general hospital with a bed capacity of about 3,000. The institution cares for all types of cases except the communicable diseases, such as diphtheria and scarlet fever. A special tuberculosis service accommodates approximately 200 patients. However, patients with pulmonary tuberculosis are also admitted to the medical wards from which they are transferred to the tuberculosis service when vacancies occur. During recent months the census of patients with pulmonary tuberculosis on the general medical wards has varied from 80 to 120.

The Kings County Hospital conducts a training school for nurses. The applicants are given a complete physical examination including x-ray of the chest before admission. Mantoux testing is done at the time of admission, negative reactors are retested at regular intervals. No applicant with evidence of a pulmonary lesion is admitted to the school, although the finding of small fibrotic strands has not in the past necessarily caused the rejection of the applicant. The course in training includes one month on the tuberculosis wards. Since June, 1938, this has been omitted in an attempt to decrease the number of cases of tuberculosis among the student nurses. Student nurses have had x-ray examinations of the chest at six-month intervals, since February, 1938, the interval has been reduced to four months.

Approximately 950 graduate nurses are employed at the hospital. The nurses have a complete physical examination and an x-ray of the chest before admission. X-ray of the chest is repeated at yearly intervals except in those cases where a suspicion of illness

necessitates more frequent examination. Nurses assigned to the tuberculosis division are required to have an x-ray of the chest at intervals of three months.

The following table indicates the number of students in each entering class from September, 1935, until September, 1938, and shows the number of cases of pulmonary tuberculosis that have developed in each group.

Entering Class	Number of Students	Number of Cases of Tuberculosis
September, 1935	29	5
February, 1936	23	1
September, 1936	46	3
February, 1937	45	8
September, 1937	57	2
February, 1938	43	0
September, 1938	77	1
	<hr/> 320	<hr/> 20

This table indicates that 6.25 per cent of the student nurses showed evidence of clinical pulmonary tuberculosis during a four-year observation period, with an average observation period of two years. This figure is almost identical with that reported by Ross⁶ of a 6 per cent occurrence among 800 nurses in training in Manitoba during a four-year period.

A critical analysis of these figures justifies the statement that it is unfair to compare them as they stand with statistics gathered from the general population. The reason for this point of view is obvious. It has been repeatedly observed that the cases of pulmonary tuberculosis reported to the health authorities are predominantly of the moderately and far-advanced groups. Minimal cases of tuberculosis in larger numbers are usually disclosed only by systematic case-finding projects. Among the 20 cases of pulmonary tuberculosis in the student nurse group, many had lesions so minimal and symptoms so scant that the diagnosis may well have escaped detection had these young women been members of the general population rather than a group under thorough and frequent observation. Some cases could undoubtedly have gone through the phase of activity and healing while the individuals continued their usual duties. That such events do take place in the general population is well recognized. On the other hand, it would also seem logical to assume that some of the minimal and relatively asymptomatic cases might have developed into advanced cases if the progress of the disease had not been checked during the early stages.

In order to arrive at figures that can be more easily compared with those compiled

sex group in the general population. Let us further assume that the statistical data thus gathered would show exactly the same percentage of cases of tuberculosis in both groups. Does that mean that the risk of contracting tuberculosis is the same in both groups? Decidedly not. In the first place the nurses comprise a carefully selected group from which all cases of tuberculosis had been previously excluded by thorough examination. Furthermore, the student nurses should theoretically have the low incidence of tuberculosis found in the high-income group rather than the higher incidence of the average-income group. It is well recognized that tuberculosis is less prevalent in the group whose income permits individual bedrooms and adequate diet. Student nurses are housed in individual rooms and receive a diet calculated and prepared under the supervision of trained dietitians. Although their surroundings may not have the elegance of the homes of the wealthy or their food may not possess Epicurean qualities, it would seem that the student nurses are cared for in housing and nutrition according to theoretic standards that should result in a minimal incidence of tuberculosis. These nurses are almost completely protected from familial or household contacts with tuberculous disease which account for so many cases in the general population. If, in the face of these conditions, the student nurses show even the same incidence of tuberculosis that is found in a similar age and sex group in the general population, it would appear logical that the professional activities are causative and that the actual incidence of tuberculosis is distinctly higher than the theoretic anticipated rate under similar conditions of living without contact with tuberculous patients.

Similarly, in the graduate nursing group statistical data require fair interpretation. In the first place we must realize that the graduate nursing group is the result of numerous health screenings. As a student nurse she was denied admission to the school of nursing if she was found to be suffering from tuberculosis. During her student days she is under constant medical supervision. If tuberculosis develops, it is likely that she will not complete her training course. Acceptance as a graduate nurse again calls for a complete physical examination. If tuberculosis is found, she will not be employed by the hospital. It would thus appear that the graduate nurse is one who has successfully passed a series of health screenings. If some

people have greater susceptibility to the contraction of tuberculosis than others, it would seem likely that graduate nurses fall into the more resistant group. If, in face of these facts, a case-finding survey in the graduate nurse group shows an incidence of tuberculous disease equal to that among a similar age and sex group in the general population that has not been subjected to rigorous and repeated health screenings, one would be justified in concluding that the nursing activities caused a higher than expected tuberculosis incidence.

Methods for Decreasing the Incidence Rate of Pulmonary Tuberculosis Among Nurses

If the exogenous theory of reinfection is accepted—and I feel strongly that the available evidence substantiates this theory—then the logical approach to minimizing the development of tuberculosis among nurses lies in the rigid application of nursing technic designed to prevent access of the tubercle bacilli to the nurses. This is by no means a new concept. The introduction of such measures has apparently led to a marked reduction in the incidence of the disease at the Anker Hospital in St. Paul, as reported by Geer.² Soper and Amberson³ reported a communication from Stehm to the effect that the introduction of strict isolation technic at the Wisconsin General Hospital has resulted, during the past five years, in the absence of any case of tuberculosis among the pupil nurses.

It is quite unnecessary to go into minute details concerning nursing technic. However, a few points deserve special mention. All patients should be masked during examination by physicians. This is not only for the protection of the physician but also of the nurse who is in attendance. All patients should be masked while the nurse is giving them baths or similar close attention.

Nurses should wear caps, gowns, and masks while in close contact with patients as in bathing or feeding them. These protective articles should be discarded for sterilization after each period of the day devoted to these specific nursing duties. Frequent scrubbing of the hands is of great importance.

Hospital regulations must pay particular attention to the technic of collecting and disposing of sputum cups. The sputum cup that is permitted to become full is a potent source of distributing bacilli over bedside tables and bedcoverings. The noncooperative patient (only too frequently found in the

negative and the first positive film was five months. The most striking disclosure was that the shortest interval was fourteen days. From these figures one can draw only a single conclusion: that the arbitrarily accepted figure of six months for routine x-ray studies of nurses exposed to tuberculous infections is too long. A three-month period would seem more desirable and would certainly seem to justify the additional expense and trouble involved.

It would also seem worthy of mention that one of the patients with caseous pneumonic disease requiring pneumothorax therapy had a negative x-ray only three months before clinical evidence of the disease was discovered. It would seem that the pathologic character and extent of tuberculous disease is dependent in a large measure upon the intensity and frequency of exposure. This would serve as an additional reason for the taking of x-rays of nurses exposed to the disease at more frequent intervals.

The Degree of Immunity Conferred by a Positive Tuberculin Reaction

Many workers in the field of tuberculosis have felt that a positive tuberculin reaction confers a relative immunity against exogenous reinfection. Heimbeck in Norway has used bacillus Calmette Guérin to vaccinate the tuberculin-negative nurses in order to confer a degree of immunity. Of the student nurses who were studied in the present survey, 47 per cent were tuberculin-negative, and 53 per cent were positive on admission. This figure agrees fairly closely with that of Heimbeck in Oslo, who found that 48 per cent were positive on admission, and also with that of Badger and Spink⁹ of the Boston City Hospital, who reported 57.1 per cent positive on admission.

In the present series of student nurses only 26 per cent of the clinical cases of tuberculosis came from the tuberculin-positive group, and 74 per cent from the tuberculin-negative group. This makes the chances of a student nurse with a negative tuberculin test on admission contracting tuberculosis three times as great as that of a tuberculin-positive student. This ratio is considerably lower than that of Heimbeck, who found a relative proportion of about 8 to 1 in the tuberculin-negative as opposed to the tuberculin-positive group.

The statistical figures from the present study require a word of comment. Many of the nurses were tested only with 1 to 1,000

O T. At a later date those reacting negatively with 1 to 1,000 were retested with 1 to 100, subsequently P P D was employed. Hence, it is possible that the disparity in this series between the ratios of infection in the tuberculin-negative and the tuberculin-positive is not as great as would appear from the calculated figures. It would seem likely that some of the nurses who did not react to the 1 to 1,000 O T might have reacted positively to a stronger dilution at the time of the first testing.

Influence of Early Background on Development of Tuberculosis in Student Nurses

Inquiry was made regarding the place of birth and locale in which the student nurses lived before coming to the hospital. An arbitrary line was drawn between towns above 10,000 in population and those with a smaller population. Of the 20 students who showed clinical evidence of tuberculosis, 9 came from towns with a population under 10,000 and 11 came from towns with a population over 10,000. Among the entire student body studied, about one-third came from communities with a population under 10,000.

I do not believe that this single series is large enough to base any conclusions on the relative rate of development of pulmonary tuberculosis in student nurses coming from small towns or rural communities in contrast with those who have grown up in more crowded localities. However, the use of these figures in conjunction with those gathered by other investigators may be of value in future studies.

Family History of Tuberculosis

Only 1 case among the student nurses had a family history of tuberculosis. However, it was found that the contact was slight. This patient also had two negative x-ray plates before the positive plate that showed evidence of disease. It would thus appear that a family history of tuberculosis played no role in the development of tuberculosis among the student nurses studied in this survey.

A General Critique of Tuberculosis Statistics in Nursing Groups

A note of caution must be introduced in the evaluation of tuberculosis statistics in a selected group such as nurses. Let us assume that a case-finding project is carried out in a nursing group and that a similar project is simultaneously concluded in a comparable age and

Therapeutics

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The Use of Human Convalescent Serum

DR EUGENE F DuBOIS This conference will deal chiefly with the use of human convalescent serum, and we are fortunate in having with us Dr William Thalheimer, director of the Manhattan Convalescent Serum Laboratory. Dr Thalheimer, will you lead off?

DR WILLIAM THALHEIMER In the brief period allotted to me, one can only hope to introduce this large subject and trust to the discussion to bring out some of the details.

It might be well to begin by stating some general rules for the use of therapeutic serums in all infectious diseases. These rules have grown out of the combined experience of many.

Any therapeutic serum should be given in a sufficiently large dose at one time as early as possible in the disease. If this is done, not infrequently further injections are unnecessary. In the case of critically ill patients, the intravenous administration of serum is the method of choice. By that method of administration the serum is immediately distributed throughout the body, and the therapeutic effects come on without the delay due to absorption. It is probably not generally known that it requires from sixteen to eighteen hours for maximum absorption of a serum after intramuscular injection and that the titer of the serum in the circulating blood at the end of that time is only half as high as after a similar dose of serum injected intravenously. Also, after the intravenous injection the titer is at its maximum immediately instead of sixteen or eighteen hours later. Obviously, the intravenous route of injecting animal therapeutic serums is not used oftener because there is a definite risk of severe reactions, even of anaphylactic shock.

Serum is rapidly absorbed after intraperitoneal injection. This is a safe route for administering serum. This method should be the one of second choice in treating severely ill patients but, strangely, these facts are not generally realized. Platou in 1923, working

at the Willard Parker Hospital, demonstrated that diphtheria antitoxin is extremely rapidly absorbed after intraperitoneal injection and that a high titer of the antitoxin is present in the circulating blood within an hour or two. Banks, in England, found the same to be true of scarlet fever antitoxin. Banks also found that the systemic reaction is not any more severe after intraperitoneal injection of scarlet fever antitoxin than after the intramuscular injection, and much less than after the intravenous injection. Banks uses the intraperitoneal route routinely for scarlet fever antitoxin in the treatment of those patients sufficiently ill to require antitoxin treatment. One of the possible reasons for the fact that this method of administration is not more generally used is the belief that there is risk of injuring the intestines or of causing peritonitis. But it seems to me that there is sufficient experience from the practice of peritoneal puncture for diagnostic purposes and also from the work of Banks and others to indicate that this method of administration should be considered more seriously than it usually is.

The opinion is quite general that serum injected intramuscularly stays in the circulation longer than when injected intravenously. However, the number of antibodies in the circulation decreases from its peak just as rapidly after the intramuscular injection as after the intravenous injection. In cases in which one cannot administer a serum intravenously with safety, one can maintain a high titer of antitoxin in the blood by repeated intramuscular injections.

The ideal therapeutic serum, I think, can be described briefly as one that has high therapeutic potency, that is concentrated to small volume, and that is safe for intravenous injection. Unfortunately, this ideal has not yet been reached with animal serums, although there can be no question about the fact that

large wards of city institutions) must be isolated, preferably in a separate room or a small ward. For these patients, strict isolation technic should be enforced. Constant observation of patients' habits, particularly coughing without covering the mouth, is necessary to minimize the spread of bacilli.

In addition to points in nursing technic and hospital administration such as have been mentioned above, the following recommendations may well contribute to a decrease in the development of tuberculosis among nurses.

1 Nurses on active tuberculosis service should not be permitted to spend more than four hours a day on the wards. The remainder of the working day should be allotted to duties that do not entail contact with tuberculous patients.

2 Nurses on active tuberculosis service should have frequent vacations.

3 These nurses should have routine chest x-rays at intervals not exceeding three months.

4 As far as possible, tuberculosis services should be divided into positive and negative wards, the nurses' schedules should be so adjusted that one group is not constantly in attendance on the positive wards.

Summary and Conclusions

1. A study has been presented of pulmonary tuberculosis developing among student nurses and graduate nurses in a large general hospital with an average census of approximately 300 tuberculous patients.

2. A somewhat higher occurrence of tuber-

culosis was found among student nurses that were tuberculin-negative on admission than in the tuberculin-positive group.

3. A higher incidence of tuberculosis was found in student nurses coming from small towns and rural areas than in the group coming from larger towns.

4. Among the graduate nurses, it was found that the majority of the cases were derived from a minority of the group whose duties brought them into frequent contact with active cases of tuberculosis.

5. This study lends support to the theory that the exogenous route of infection rather than endogenous infection from an old primary complex accounts for most cases of clinical tuberculosis in nurses.

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"LEAVE 'EM WHERE THEY LIE"

(Prepared by the Fracture Committee, Texas State Medical Association, sponsored by Texas State Highway Department and Texas Public Safety Commission.)

Preamble

Series of Instructions on First Aid Following Injuries on the Highway—Leave 'Em Where They Lie

You, Mr. John Public, have, through the press and other sources of general information, been told many things and been taught much about public health, about contagious diseases and their prevention, about tuberculosis and cancer.

You have learned much in the prevention of disease, in how reasonably to take care of yourself and your family when trouble threatens or arrives.

You have been taught that wounds may become infected and to go to your doctor early, you have been taught that a broken bone must be set, but you have not been taught what to do and why in the case of injury and emergency

on the highways, where there is no one to whom to turn and you only have your own knowledge and ability to take care of such emergencies yourself.

The series of articles on the subject of highway accidents, describing each one in turn and telling you in each instance what and what not to do, is being published for your information, only to help you help yourself or someone else—your wife, your mother, your child, your neighbor—in such an emergency when the difference between saving life or limb depends upon doing the proper thing at the right time. A single act, wisely done, is better than a hundred acts hurriedly done without reason.

Why are you told to "leave 'em lie?"

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patients during convalescence from these diseases, at intervals of from two or three weeks and for a period of four months after the onset of the illness. The serum which results is processed with sterile technic and is proved to be sterile at every stage. Only those with a negative Kahn and Wassermann are used. They are finally pooled, thirty or forty in a pool. Merthiolate is added to the dilution of 1 to 10,000, and the final preparation after filtration through a Berkefeld is placed in vials, and the proper number of vials as required by the United States Public Health Service are tested for sterility. The sterility test is held for seven days. Also, some serum is injected into mice and guinea pigs for animal toxicity tests. Only after sterility and toxicity tests have proved negative is the serum finally released for use.

We have available two specific serums for scarlet fever. Their therapeutic and prophylactic value is established. One is human convalescent serum and the other is antitoxin (animal). About 10 or 15 per cent of the children exposed to scarlet fever will contract this disease. Our records indicate that when children receive 20 cc of convalescent fever serum intramuscularly only 1 or 2 per cent will develop scarlet fever, and those that do develop the disease have, in our experience, developed it in a mild form, in some it is even incomplete, with sore throat and cervical adenitis but without a rash or other signs. Therefore, one can say that about 80 or 85 per cent of the children whom one expects to develop scarlet fever escape it when they receive convalescent serum prophylactically. So much for prophylaxis.

The curative results with the intravenous injection of convalescent human serum are quite dramatic. The following dose should be used in children who are acutely ill with scarlet fever—namely, those with high temperatures, with rash and marked toxicity—in the very early stages of this disease, up to about thirty-six hours after onset 20 cc intravenously for children up to the age of 5, 40 cc for those from 5 to 10, 60 cc for those from 10 to 15, and 80 to 100 cc for large adolescents or adults.

In from 75 to 80 per cent of those treated, the disease is aborted. In from twelve to eighteen hours one frequently sees an extremely ill and toxic child transformed into a convalescent one. Within this period the temperature falls by an average of 3 to 4 degrees, often the rash begins to disappear and the marked toxicity subsides. Some-

times there is a slight rise of temperature during the second twenty-four hours, after which it usually returns to normal and stays there. If treatment is delayed for three or four days after the onset of the illness or if, even in the early stages, complications have already appeared, then the results are not so rapid and not so dramatic, but they are still worthwhile. Under these circumstances several injections of serum might have to be given, whereas in the children treated early, as just described, usually one injection is sufficient. The percentage of complications in the treated cases is reduced to one-third of that expected, and complications are usually much less severe. After intramuscular injection the action is not quite so rapid and the serum is not so effective. Similar results can be obtained with the use of scarlet fever antitoxin. I have had no personal experience with it, but my belief is, from reports which have come to me, that the results are obtained somewhat more slowly since this material is administered intramuscularly. I know of no reports of antitoxin being administered intravenously.

We may now pass on rapidly to measles convalescent serum. Its use is confined almost entirely to prophylaxis. With this serum administered intramuscularly not later than the seventh day after exposure to measles, 49 per cent of the children escape measles. Only 0.7 per cent develop the usual form of the disease, and the rest develop a modified form of measles which is often so slight that it is difficult to make the diagnosis unless one is familiar with the modified disease. Modified measles is somewhat different in appearance from mild unmodified measles. Dr. Stimson can tell you more about that. In our experience, therefore, 99.3 per cent of the children who receive a proper dose of measles convalescent serum not later than the seventh day after their exposure will either not develop measles at all or will develop modified measles. Modified measles is a much milder disease. In oversimplifying that, one may consider it a one-day mild, febrile disease rather than the usual three- or four-day disease. Modified measles confers a considerable degree of permanent active immunity to measles. However, from the few instances that we happen to know about, I think we can state—and this might have to be corrected by later experience—that a child who develops a barely detectable modified measles cannot be considered completely resistant to measles on subsequent exposures. Dr. Stimson might tell of 1 case of

many of the serums are now safer than they used to be because of the improved methods of refining

Before injecting animal serums intravenously one should test the patient for sensitivity, and the test should be made with normal serum of the same animal species and not with the therapeutic serum

There are several efficient human serums that can be administered intravenously with safety, in large amounts, and repeatedly

In recent years I have been interested in human therapeutic and prophylactic serums, particularly measles and scarlet fever convalescent serums. I may relate briefly some of the results that we have obtained and which have been reported to us by many physicians who have used these serums. These serums can be injected intravenously with safety, because one is not introducing foreign protein. It is introducing human proteins into humans. One must immediately state, however, that the serums have to be carefully prepared, otherwise reactions would result such as occur in from 3 to 10 per cent of compatible blood transfusions. In 1 or even 2 per cent of the cases a febrile, or possibly a chill, reaction takes place after the intravenous injection even of properly prepared human serum, but the incidence of these is much smaller than that of reactions following compatible blood transfusions, and they are not more frequent than reactions after the intravenous injection of saline or glucose solutions

The question always comes up as to whether the incompatible isoagglutinins that are present in pooled serum might not be dangerous to inject intravenously. Categorically, one can say no

The rules that apply to the intravenous injections of incompatible cells do not apply to incompatible agglutinins. Of course, it is most dangerous to inject incompatible cells intravenously. However, upon the basis of a large experience of many people and also of some investigations of our own, we can say that in pooled serum that has been prepared from blood obtained from individuals belonging to the various blood groups the titer of agglutinins is likely to be relatively low. This is so because there is dissolved agglutinin in serum and some of the agglutinin is absorbed by it in pooling, also, the serum is immediately diluted in the entire circulating blood of the individual who receives it. Furthermore, the results of some investigations that we have carried out with the aid of Dr

Klein and others at the Willard Parker Hospital and elsewhere show that incompatible agglutinins, injected intravenously, disappear immediately from the circulating blood. We used children with scarlet fever. We injected serums containing incompatible agglutinins. We secured a sample of blood from the patient immediately before the injection and another from the other arm, using a different sterile syringe, immediately after the injection. We never found any agglutination of the patient's cells because of the injected incompatible agglutinins. What is more, we failed to find these incompatible agglutinins, although only two or three minutes had elapsed since their injection. They had disappeared.

We carried out the same type of experiment in test tubes in which we made similar dilutions in heparinized blood. We found that one can detect agglutination of cells when the serum containing incompatible agglutinins is diluted as high as 1:160. We were also able to detect some unabsorbed agglutinins.

The incompatible pooled human serum has been so administered as to result in a dilution in the patient's circulating plasma, at times, of not more than 1:14 and still all of the agglutinins disappeared immediately. Since one does not find the free agglutinins in the circulating blood, we were led to believe that the absence of reactions is not due only to the dilution of the incompatible agglutinins. The agglutinins are not absorbed only by the cells circulating in the patient's blood. It must be that the final removal of the agglutinins is accomplished by fixed tissue cells. We know that fixed tissue cells have specific agglutinogens and will absorb agglutinins.

We have also injected into patients serum with incompatible agglutinins, concentrated to one-third of its volume. In these individuals the amount was the equivalent of 300 to 400 cc of isotonic pooled serum for adults weighing about 150 pounds. No reactions resulted, the agglutinins disappeared completely.

As you all probably know, the British are making extensive use of isotonic plasma or serum by intravenous injection in the treatment of patients in shock. They almost always inject from 1,000 to 2,000 cc. They have reported no reactions, although the pooled serum has undoubtedly contained agglutinins incompatible for some patients.

Briefly, scarlet fever and measles convalescent serum is prepared by drawing blood from

hospitalization among 4,000,000 soldiers. Next to that were the venereal diseases, particularly gonorrhea, which cost 3,900,000 days, but mumps with its 3,800,000 days was a close second, and measles with 1,800,000 days was about half as much.

It is of interest to note that in the Army records there were 17,000 cases of German measles with 211,000 days lost and 82 deaths reported. Whereat one crosses one's fingers skeptically, and if you look a little further you find that most of these cases of German measles and all of the deaths were reported from Army camps where relatively little scarlet fever was reported. They probably did not know the difference. Altogether scarlet fever cost only 500,000 days or 354 deaths in soldiers. Typhoid fever and smallpox, the two diseases which cost the Army most and were most prevalent in previous wars were negligible factors in the first World War. Smallpox caused altogether only 850 cases and 14 deaths, which is remarkable when you consider that about 40,000 of our troops in the Philippines were exposed to an epidemic that caused 100,000 deaths in the civilian population there during the period of the World War.

Doctors ought to be able to do something to prevent this tremendous loss of time and considerable loss of life for which the contagious diseases are responsible.

Theoretically, we ought to be able to prevent measles and mumps. Of course, scarlet fever and diphtheria are preventable, but scarlet fever did not cost much time loss, and diphtheria cost even less.

Measles and mumps cost the Army a tremendous amount of time, and measles occurred particularly in those troops that came from the rural districts. The troops that came from the cities had little measles, and it would seem that blood could be taken from the city troops, pooled, and used in the camps that get their troops from the rural districts. The same might be done for mumps.

There are now a number of reports of summer camps in which mumps appeared and the camp doctors took energetic measures, obtaining convalescent serum from somewhere. Perhaps, some of them got it from you, Dr Thalheimer?

DR. THALHEIMER: Yes.

DR. STIMSON: They apparently had good results. It would seem worthwhile to give adults who are exposed to mumps fairly large injections, 20 to 30 cc if one can get it.

Appropos of obtaining measles serum, it has been shown that blood taken from a person

who is incubating measles, especially in the last half of the incubation period, is infectious. It can transmit measles and, of the thousands of people who are donating blood to England for pools of serum for the treatment of shock, it is to be hoped that none are incubating measles. There is no way of testing those who are incubating measles until after they have come down with measles. Theoretically, that might cause trouble but practically it probably will not because each blood, as I understand it, is pooled with thirty or forty other bloods and most of it is so-called adult measles serum—that is, it is blood from adults who have had measles in childhood—and presumably there are enough antibodies in pooled serum to neutralize any virus that might be in a single specimen. However, it is a point worth considering.

The infectious or contagious diseases are roughly divisible into two groups: those due to bacteria and those due to viruses.

In those that are due to bacteria, serums are valuable both for prevention and for treatment.

In those due to viruses, serums theoretically are valuable for prevention in those cases that begin as a blood-borne infection. If the virus gets into the blood first and is present in the blood for an appreciable length of time, the administration of serum should be of prophylactic value. It is so in measles and it probably is so in mumps, but it has not yet been proved so in chickenpox and smallpox both of which begin certainly as blood-borne virus infections—that is, they begin as constitutional infections. This may be because we have not given them enough serum. If we gave these people 100 to 200 cc of convalescent serum instead of 20 cc, it might be effective. It has not been tried in smallpox because we have another preventive that is more effective, vaccination. In the virus diseases where the virus travels along nerves, theoretically, the administration of serum cannot be effective—for instance, in poliomyelitis.

The virus is cell bound almost at once and, therefore, the administration of serum is not likely to be helpful in treatment. That proves to be the case with the one possible exception of measles, as Dr Thalheimer said, but in that case the serum has to be given exceptionally early, almost before the Koplik spots appear. One can get a hint of the presence of measles even earlier if one watches the eyes. The caruncle in the inner corner and the plica semilunaris are apt to be swollen and red before Koplik's spots appear.

his in which a little child developed a mild measles after convalescent serum, the following year the child again developed measles, and this time it was also a modified measles. It would appear that if the modified measles is not too much modified, that if it remains severe enough so that an appreciable rash develops, then the child can be considered quite resistant to measles at subsequent exposures.

It is generally assumed that, by the time the rash appears, the child with measles has already been infectious for four days. At this time the child in contact with the patient in its home may be considered to have been exposed for four days. This bears on dosage. When we have calls for serum under these circumstances we advise the dosage on the basis of four days' exposure. We are not very certain of the dosage necessary in the various age groups and kinds of exposure. We have been investigating this for three years and we are still at it. We hope to have enough results to publish by the end of this year. We know the dosages necessary for protecting children who have been exposed to another child with measles in their own home in the tenement house type of residence. There you have the severest test, I believe, of the prophylactic efficacy of serum. The dosage is larger than we thought previously. At present we are recommending that no infant, even up to the age of 1 year, shall receive less than 5 cc of serum intramuscularly. From 1 year on up to 10, they should receive 10 cc, and children over 10 should receive 15 or 20 cc.

The fact that one cannot secure 100 per cent protection with any material that I know of is of especial importance for institutions, hospitals for sick children, and orphan asylums. There will always be some secondary cases of modified measles. From a public health point of view, the fact that the exposed child may develop a mild measles, with partial permanent resistance to measles after the serum, is fortunate. Even in institutions the modified measles is better than complete protection, because if it is complete there will come the time, beginning about ten days after immunization, when the child is again susceptible. In private practice we recommend the effort to immunize completely against measles in all children up to the age of 1, because in that age group the mortality from measles is highest due to complications, particularly pneumonia. It is probably not generally realized that the mortality rate of measles and its complications in individuals up to 1 year is 8 per cent and that the group

mortality rate for children up to the age of 3 is probably 4 or 5 per cent.

Can anything be accomplished therapeutically once the signs of measles have begun to manifest themselves? There are two phases in the period of active measles: one is the Koplik spot, pre-eruptive stage, the other, the eruptive stage and that which follows. Work carried out by Drs. Kohn, Klein, and Schwarz at the Willard Parker Hospital on a group of about 30 children who were given large intravenous doses of convalescent measles serum, 40 to 50 cc in the Koplik spot, pre-eruptive stage, showed that in 85 per cent of these children the disease was influenced by the serum and, instead of its developing into the full-blown unmodified disease, it developed into one-day mild measles. This method is not recommended for general application but in special cases, such as a child ill with pneumonia or poliomyelitis, or one who has recently recovered from diphtheria. So far as we can make out, although many studies in the literature report to the contrary, once the rash has developed, measles convalescent serum is not able to influence favorably the course of the disease.

In children from 3 to 5 years of age and older who are healthy and whose home conditions are good we believe we are doing the best by the child and by the community by attempting merely to modify the disease and confer active immunity in the child rather than attempt to protect it completely.

DR DuBois. We will now ask Dr. Stimson to continue the discussion.

DR PHILIP M. STIMSON. Many of you here are liable to see sick soldiers during the next two or three years, and I took the occasion to look up the figures of the contagious diseases in the United States Army in the last war. It is of interest to note, for instance, that there was enough mumps in the Army to cause a loss of time equivalent to putting a division of 27,000 men out of duty for nearly five months. This seems incredible, but in actual figures that was 230,000 cases, with a loss of 3,800,000 days. In two large Army camps over one-fifth of the men contracted mumps. Similarly with measles, there were twice as many cases of measles as there were men killed in the field of battle, the figures being 98,000 cases of measles with 2,000 deaths from the 6,000 cases of pneumonia. As a matter of fact, the infections of the upper part of the respiratory tract were the principal illnesses that caused loss of time, there being over 1,000,000 cases that required

members of the family can be used for prophylaxis of measles providing one uses enough and providing one is certain that they have previously had measles and that there is no risk of transmitting syphilis or malaria. Four cubic centimeters of such serum should be injected for each 1 cc of convalescent measles serum. The equivalent of a 10-cc dose of convalescent serum, which we recommend for children between the ages of 1 and 10, is 40 cc, a rather large amount to inject intramuscularly. Since blood is made up of only 50 to 60 per cent of plasma, the amount of whole blood injected should be twice that of the amount of serum just given.

STUDENT I should like to ask two questions. What is the variation in potency among different lots of convalescent serum, because in the final analysis that might determine the dosage? Has the use of hyperimmunized individuals such as donors been considered—that is, immune individuals whose antibody content is increased by injections of measles virus?

DR. THALHIMER There is no laboratory method of standardizing measles convalescent serum. It would require a standard virus and a standard animal to which one could give measles. The only animal one can give measles to is the monkey and then only with considerable difficulty. Therefore, the only method of evaluating the dosage in measles is the empirical one, observations in humans.

With scarlet fever we can determine the amount of scarlet fever antitoxin in human convalescent serum—that is, antitoxin for the erythrogenic toxin. There are only about 10 units of antitoxin per cubic centimeter of human convalescent serum. The number of units of antitoxin in the usual dose of convalescent serum is small compared to that in the dose of animal antitoxin. In human convalescent serum there are also bactericidal substances against hemolytic streptococci, and other immune bodies as well, which are not present in scarlet fever antitoxin. The fact that we obtain just as good, if not better, clinical results with the dosage of convalescent serum we use, even with its small content of antitoxin, we believe, demonstrates that these other antibodies play a part in the therapeutic effect and that the amount of antitoxin which is needed to control toxemia in scarlet fever patients is not so large as has been previously thought.

I think one might question the term "hyperimmunization." There can be a higher or lower level of immunization. But I am not

sure whether one is justified in referring to any one as hyperimmunized. In the way in which the term is used, to hyperimmunize measles' donors, one would have to have plenty of measles virus in a form that would not expose the subject to danger—namely, attenuated or killed virus. Few people, I believe, have been able to cultivate measles virus. Plotz at the Pasteur Institute in Paris, then Rake, and one or two others have succeeded. I think Dr. Goodpasture has also been able to grow it.

DR. DUBOIS I should like to ask a question that is of considerable military importance at the present. What is the status of tetanus toxoid? Dr. Thalheimer, will you comment on that? Do you advise its general use in the Army?

DR. THALHIMER It seems to me, from the evidence that has been accumulated and is being added to with great rapidity, that it is of great importance for general use. Dr. Donald Fraser, of Toronto, who was in New York a few days ago, stated that he feels the same way about it. All the Canadian soldiers are being immunized with it, as well as many people in the civilian population. There was a note in the *Lancet* by Perry, who compared the occurrence of tetanus in this war with that in the last war. In the last war it was something like 8 per one thousand and this time it is a fraction of 1 per cent. He also stated that no wounded soldier known to have received tetanus toxoid had yet developed tetanus in the present war, but he said also in all fairness that some of those had also received tetanus antitoxin after their recent injuries.

DR. DUBOIS I am sorry we have no further time for discussion.

Summary

DR. HARRY GOLD This discussion has dealt chiefly with the use of human convalescent serum in the control of various infectious diseases—namely, measles, scarlet fever, whooping cough, mumps, German measles, and poliomyelitis. The most effective way of using human convalescent serum is to give a large enough dose at one time, as early as possible, by intravenous injection. It is less effective by the intramuscular route because of the delay due to absorption. The intraperitoneal route is effective, but this method of administration has, in the opinion of Dr. Thalheimer, not been used so widely as it should be. There appears to be no danger from the incompatible agglutinins in pooled

If you have a ward epidemic, for instance, with children who have been exposed to measles and you are looking out for secondary cases, watch the thermometer first and the eyes second, and you can spot the new cases before the Koplik spots appear. If in those early stages you give the convalescent serum in doses of 40 to 50 cc intravenously, you can possibly modify the oncoming measles.

I want to make one more point, and that is the cost of scarlet fever serum which must affect the treatment. Last year there were 350 cases of scarlet fever at one time in Willard Parker Hospital, and we discharged 700 cases before we had a death from that disease. Scarlet fever, even if untreated with serum, is, therefore, a comparatively mild disease nowadays. Convalescent serum costs 25 cents per cubic centimeter. If an adult gets 100 cc, that is \$25. Scarlet fever horse serum costs from \$8.00 to \$10 per dose. When you have 350 patients in the hospital, unfortunately you just cannot afford to give serum to every case.

Theoretically, it is desirable to give every early case of scarlet fever a therapeutic dose of serum. As for the cases that come in on the fourth or fifth day of the disease and who have already begun to get well, one is justified in watching and seeing how they get along. They will probably recover without further trouble.

DR DUBOIS: Are there any questions from the audience?

DR C H WHEELER: I should like to ask Dr Thalhimer if he would discuss briefly the indication for convalescent serums in other diseases, such as chickenpox and mumps.

DR THALHIMER: In the case of mumps, I think that the evidence that has accumulated is suggestive of its having a protective value, but it is not yet convincing. More work has to be done.

I think the situation is similar in the case of the prophylaxis with large amounts of serum in the early stages of whooping cough.

In a trial of chickenpox convalescent serum at the Willard Parker Hospital, even where 40 to 60 cc were administered, we could not demonstrate statistically that we had accomplished anything.

While I have not worked in the field of German measles, the reports in the literature indicate failure to prevent German measles.

DR DUBOIS: What is the situation with regard to poliomyelitis?

DR THALHIMER: Maybe Dr Stimson will state his experience.

DR STIMSON: Poliomyelitis convalescent serum is not used at the Willard Parker Hospital. We have a low mortality rate from the disease there, as low as at any hospital, and we use none either for therapy or protection.

With regard to pertussis serum, if I may add a word, babies in the first three or four months of life do not respond to any vaccine—such as vaccines for whooping cough—and, if exposed to whooping cough, they are liable to have a serious disease. The only thing one can do to protect them is to try to give them a considerable amount of serum. In Philadelphia at the University of Pennsylvania, they have lyophil and hyperimmunized serum which is being used. If I had a little baby who was exposed to whooping cough, I certainly would make a great effort to get some of that serum.

DR E A. KABAT: Are the human serums available commercially?

DR THALHIMER: No, not commercially. There are a number of laboratories throughout the United States which are nonprofit organizations and dispense these serums at actual cost of production.

DR KABAT: Can you get pertussis serum in New York City?

DR THALHIMER: Not from us, because we feel that the demonstration of the efficacy is not sufficiently clear. If we were to dispense it, it would be tantamount to our holding that it is efficient.

DR DUBOIS: Can convalescent serums be obtained upstate in New York?

DR THALHIMER: So far as I know they are not being produced in New York State anywhere other than here in New York City, but we have a federal license for dispensing serum, and we send it all over the United States by air express. Not infrequently we get calls from upstate.

Convalescent serum can be purchased from the Manhattan Convalescent Serum Laboratory, which is affiliated with the Department of Health and located at the foot of East 15th Street, Manhattan. Inquiries should be addressed to the laboratory—telephone GRamercy 3-8080, or STuyvesant 9-3100, Extension 2. Evenings, Sundays, and holidays call WOrth 2-6900 for information as to where serum can be secured.

DR McKEEN CATTELL: In instances where prepared serums are not available, do you regard it good practice to inject blood or serum from members of the family who have had the disease? What are the contraindications to that procedure?

DR THALHIMER: Blood or serum from

Medical Preparedness

Rehabilitation

Medical Bulletin No 5—June 30, 1941

UP TO June 30th, the Selective Service Administration of the New York City Area has examined 114,850. Of these, 49,435 were put in 1-A, fit for any of the rigors of military service, and 34,977 were put in 1-B, classified as fit for limited military service only.

It must at once be comprehended that from a standpoint of rehabilitation, a considerable number of men in 4-F will be found to have defects that medical therapy could correct and render them fit for full military duty. Furthermore, there will be found many classified in 1-B who are absolutely beyond the efforts of any medical care to render them fully competent for full military duty. This is inherent in the regulations which define these classifications.

The regulations classify the registrant as he is found physically at the time of the medical examination. Thus, a given registrant presents at that time a specific physical defect or defects. The classification under the Selective Service Regulations is only concerned with the answer to the implied question:

Is he now able to perform, with the condition he now has, full military duty, limited military duty, or is he not able to perform any military duty?

The idea of rehabilitation has been a byproduct of the statistical study from the medical examination of the registrants coming under survey of the administration of the Selective Service Law. Because these medical statistics were accumulated during the period since the law became effective and were assembled with no ulterior thought in mind and with no idea of bolstering any program or plan for health measures, they undoubtedly furnish unbiased factual data on the state of health of a cross section of the male population in the range of age groups between the years of 21 and 35.

In a bulletin issued from this Medical Division, under date of April 15, 1941, I advocated the establishment of a procedure in rehabilitation. On March 31st the National Administration appointed a Rehabilitation Council to study the proposition and on April 16th the National Administration recommended treatment for remedial defects found upon our physical examinations.

In a program which was termed "Prehabilitation," the National Administration suggested that it be entirely *elective* on the part of the registrant to accept the proffered cure and stated that it would become effective because of a proposed educational campaign which would lead to a closer cooperation between the registrant and his local physician or dentist. Various ancillary medical bodies were integrated in the movement. The National Administration hoped that the new plan would materially reduce the percentage of rejectees for physical deficiencies and "by improvement of the health of young men of military age would tend also to better general public health."

Again, on April 25th, Selective Service Headquarters announced that they would distribute an educational pamphlet to registrants to "make yourself fit for service."

In spite of all these efforts, the situation in regard to rehabilitation has remained, to a great extent, unchanged in this area.

In the bulletin of April 13th, to which I referred above, I remarked that educational campaigns are not enough to make the obvious remedy practical and solve the problem. The concept that every citizen has an obligation to perform his military duty should be strengthened. I suggest that the Selective Service Law be changed to make it compulsory for a citizen to undergo curative therapy so that he could not hide behind his defect and avoid the obligation of military duty which the Selective Service Law now imposes upon him.

On May 23rd General Hershey, discussing curative measures to improve the general health standard, said that the registrants not yet classified "owe a duty to their government for service." He also stated that "obligation calls for the service of a whole man—a man entirely alive—a healthy, strong, well-developed man. It is the duty of the registrant faced with this responsibility to use every means available to make himself fit to serve."

General Hershey further continued: "I do not believe our people will continue indefinitely to accept avoidance of military obligations by the class to which I have just referred. If this assumption is accurate, we are confronted with the necessity for rehabilitation for the members of this group where it is possible to better their physical condition. . . this group must be utilized in a manner which will not permit them to escape military obligations because of their physical condition."

Having these bulletins and recommendations in mind, an effort was made by this Headquarters to try a voluntary experiment in the area of one Local Board in Queens County where ancillary organizations were integrated to help the registrants rejected to quickly and easily secure medical service to relieve remedial deficiencies. This effort has been going on for two months but I note no marked reaction accompanying this effort. More positive methods of persuasion evidently are necessary to ascertain whether or not voluntary efforts at rehabilitation are capable of producing an improvement in the health standards of these groups of men found physically below standard for acceptance into military service.

The organized medical profession has contended, for a long time, that availability of medical care was adequate enough in our area and that many people would refuse its benefits even were it put upon their doorstep. In acute distressing illness, obviously every one seeks relief. But in the category of the aftermath of

human convalescent serum when it is injected intravenously into patients, and as much as 2,000 cc of such serum is given intravenously without reaction

Scarlet fever and measles are the two diseases in which human convalescent serum has proved most effective. They are not available for distribution by commercial firms but may be secured through the Manhattan Convalescent Serum Laboratory, which is affiliated with the Department of Health of New York City

In scarlet fever the serum can be used for prophylaxis as well as for treatment. An intramuscular dose of 20 cc will completely protect about 8 out of every 10 children against scarlet fever. The others usually develop a mild form of the disease. The serum will also abort scarlet fever in most patients when it is so given within the first thirty-six hours of the onset, in intravenous doses varying from 20 to 100 cc, depending on the age. Complications are less severe and their incidence is diminished. One problem is the cost of human convalescent serum, which amounts to about \$25 for a 100-cc dose necessary for an adult

It was pointed out that animal scarlet fever antitoxin is also effective but less so. This is given only by intramuscular injection

In measles, human convalescent serum appears to be of importance only for prophylaxis. It produces a beneficial effect in about 99 per cent of the cases. About one-half to three-quarters of the children will escape the disease if the serum is given not later than the seventh day after exposure. In most of the others it becomes such a mild disease that it is sometimes difficult to make the diagnosis. When the disease is completely prevented, the immunity begins to wear off in about ten days. It is, therefore, under most circumstances,

better to confer only partial immunity—that is, reduce the disease to a mild form—since the mild form of the disease produces lasting and satisfactory immunity. In the vast majority of children, measles will be a mild disease when the serum is given in the pre-eruptive stage, but once the rash has appeared, convalescent serum has a questionable influence on the course. The dose is not less than 5 cc by intramuscular injection, in infants up to 1 year, up to 20 cc in older children. If it is not feasible to use convalescent serum, blood or serum from members of the family may be administered intramuscularly for the prophylaxis of measles. The dose is four times as large, and eight times as large if the whole blood is used

In the case of mumps there is some indication that a dose of 20 to 30 cc of convalescent serum will prevent this disease, but the evidence is not entirely satisfactory

Dr Stimson is in favor of the use of convalescent serum for whooping cough, since it is such a serious disease in young infants, but Dr Thalheimer does not believe its efficacy is sufficiently established

Also there seems to be some question about the value of convalescent serum in poliomyelitis. It is not used in the Willard Parker Hospital, where the mortality is as low as elsewhere

Tetanus toxoid for immunization against tetanus seems now to be an established procedure. It is widely used and is effective in the prophylaxis against tetanus, although it is not fully trusted since injured individuals still receive antitoxin as well

Various interesting points relating to the preparation of human convalescent serums, their mode of action, their dosage, theoretic aspects of their use, and public health aspects were discussed

A STRIKING CONTRAST

How many people know that the doctors who serve the local draft boards give their services absolutely free? This takes much of the time of doctors in every part of the country. It has been granted generously, with no thought of reward. The young men who are being taken for the nation's defense have the satisfaction of knowing they are receiving the best medical examinations of any army recruits anywhere in the world

How striking is the contrast between the attitude of the doctors in giving this invaluable service and the attitude of those crafts and trades that have endangered the defense program through strikes and jurisdictional disputes

—*New York North Side News*

THE FEAST—by DR. SAMUEL BRICKNER
Reprinted in The Saranac Lake News by the author's request, the day before he died

There is no more Lucullan feast than this

At which I daily sit,
Laughter and sunshine, love, a tender kiss—

These are the sweets of it
If by chance, black stormclouds lowly bend

My unresisting head,
It is no symbol that my joy shall end,

For still my feast is spread.
A day will come, with laughter just as sweet,

The sun will fill the air,
Love still be young but other lips will meet

I shall have had my share.

—J A M A

ner of its being done and by whom it shall be done.

In other words, he should be compelled to take the cure for his deficiencies if medical opinion believes the deficiency can be cured. He shall have the election of *who* shall do it and *where* it shall be done. He may elect to have it done by a physician of his own choice, and pay for it, he may elect to have it done at a voluntary or a municipal hospital or clinic, under rates to be arranged by Selective Service in the same manner as the laboratory fee schedule was arranged for, by mutual agreement of the hospital authorities and Selective Service. As a last resort, the man failing to elect employing any of these courses shall be taken into the Army under a condition to be termed "*Provisional Induction for Rehabilitation*" and an Army hospital with its staff shall undertake the rehabilitation.

The Army hospital designated to receive these provisionally inducted men, need not be a fixed, regular Army hospital, although it may be. A hospital in this area might be staffed by Medical Reserve Officers who are at present upon an inactive status because they have assignments to Army sponsored medical hospital units, or because they are of an age not acceptable, at present, for full Army medical field work. There are many such officers available in this area. They constitute a pool of "frozen medical assets" under present existing conditions and regulations.

To utilize them in the suggested manner, would free these "assets" and make many highly skilled and capable men available for this work, who have already made a record of patriotic contribution since they have taken a degree of medical military training. Some have very creditable records of prior periods of service during the last war.

Were this type of hospital for those "provisionally inducted for rehabilitation" located within the city area, the costs could be lessened greatly by having the Army medical duty carried on upon a part-time basis. Furthermore, I have received, at various times, tender of their facilities from some of the voluntary hospitals in this city. Pavilions from such grade A institutions would be usable to house sections of such a rehabilitation medical unit.

I believe that once the work to organize such a service were given, the organization of the service within the city area would not present a very great problem. The profession, and the ancillary medical organizations here in New York, are eagerly anxious to help, not only the goal set for Selective Service, but also the rehabilitation of the class group herein discussed.

Just as soon as the man is ready for discharge from these special rehabilitation sections of existing hospitals, or from the Army rehabilitation hospital, he shall then be sent to a convalescent camp which should be established in this area. It is not good practice to keep convalescent men in a hospital atmosphere longer than absolutely necessary for medical care. Therefore, the camp for convalescence should be some distance away from the hospital proper.

At this camp, gradual body-building exercises and graded physical training should be given and the registrant shall undergo this process of training and hardening until he is fully fit, and then be transferred into the Army under the provision of full induction, to take his military training.

I am more inclined to carry on this experiment with a limited group to gain experience as to how it would work. There is every reason to believe it would work well.

Meanwhile, study should be continued upon this problem, the whole question of how to bring people needing remedial therapy to *accept* it on a voluntary basis, provided means were at hand to deliver it to them, is one of the unsolved questions in our medical field today. This is a problem to which the medical profession has often directed attention.

From the factual data at hand at present, it is reasonable to assume that almost exactly similar percentages of physical defects are present in those of the same age group who, because of family dependencies and other legal deterrents, are deferred and are not at this time being physically classified. Figures on these are not available at the Medical Division. They total, in the aggregate, to May 1st, 288,398 white and 11,408 Negroes. Upon these, no physical examination has been made.

If military training is to give to those who undergo it—as we believe it will—a stronger, healthier body to meet the demands of life when they are returned to their wonted civilian status, the problem presented by the physical deficiencies among those whom the law at present leaves free to go their own way, will be still greater, for these men will find themselves doubly handicapped when they come, as they must, into competition with this stronger, healthier group in business and industry—when the present emergency will have passed and become history.

Good, sincere planning for the achievement of even better health levels and physical standards in our population over and above the extremely fine level of health which our country now possesses in comparison to that found anywhere in the world, must not leave out of account these factors.

However, our present paramount concern is focussed on procurement of effective manpower for the Army. To render those now among the physical discards from this patriotic service, *available* for military duty, will be to begin to solve the problems herein outlined.

The groups outside the provisions of the Selective Service Law—because deferred—must await the results obtained through experience gained with the groups of men which are our present concern.

To actually begin the process of rehabilitation among this group, for military service, will give us the experience we need, to base a program on facts and not on theories when we come to consider the necessities which the problem presents for civilian workmen.

SAMUEL J. KOPETZKY
Colonel, M C, Medical Division

such acute illnesses and the ensuing chronicities where the lesion is not actually disabling, if gainful occupation can be continued at the time, reluctance to accept therapeutical relief has been the rule, observers and heads of Hospital Departments and Clinics have found. What these defective registrants cannot, and do not, realize is that with the advancing years these disabilities increase.

A recently published bulletin from this Headquarters, on a survey of age groups (*Medical Bulletin No. 4*, Selective Service Headquarters, New York City, May 9, 1941), shows that of 37,329 in the ages below 25 years, 22.4 per cent were found fit for limited duty only and 18% were totally disqualified for such duty.

The percentages of disqualifications increase in each successive age group. Thus, in the age group between 26 and 30 years, among 25,900 registrants, 47.9 per cent were available and accepted for Army duty, 28 per cent were able to do limited service, and the disqualified reached 23.8 per cent. In the age group between 31 and 35 years of age, the figures were still higher. There were 19,336 registrants in this group. Of these, 35 per cent were accepted for full military duty, 34.85 per cent fell into the 1-B classification (limited duty), and 29.2 per cent were rejected as unfit. This study comprised a survey of 87,085 registrants up to and through the eleventh induction quota call.

If this survey of medical statistics is a fair sample of what is being uncovered throughout the country, then it must be evident that this sample finding has connotations of pertinence to the employment problem. With advancing age, the handicap due to physical defects increases, and one has a right to assume that eventually the man thus handicapped drops from employment and, in the end, becomes one of the group of unemployables.

Thus, rehabilitation is concerned with more than military obligation, for it has ramifications in civilian productive endeavor and industry. At this time the exigencies of the military training program play a major role, and, while it seems proper to indicate other implications which remedial medical deficiencies inherently entail, that aspect of a rehabilitation program dealing with the problem of making unfit men fit for military duty is our primary concern at this moment.

Therefore, an intensified effort to use persuasion to have the unfit men voluntarily accept and undergo remedial therapy has been started in the New York City Selective Service area of jurisdiction. With the approval of the New York City Director, Colonel Arthur V. McDermott, a city-wide effort is now under way.

Accepting the proffered aid of the North Atlantic District Branch of the American Association of Medical Social Workers, at each of the 280 Local Boards there will be a social worker trained in interviewing people needing medical service. These social workers are trained in comprehending the necessities of funds for home (rent) and family income. They daily have to determine the ability of patients to pay fees in the hospitals and clinics of New York City where they habitually work. They have an acute awareness of those entitled to free and part-pay medical care. This knowledge and

technical ability they have volunteered to the New York City Selective Service Administration. The offer of service was gratefully accepted.

The plan would function along the following lines:

At each Local Board there will be one of these volunteer social workers who will make contact with the registrants classified in both 1-B and 4-F. A blank has been prepared which the registrant will fill out with the aid and assistance of the social worker. On this blank, among other things, the registrant will be asked:

Will you accept remedial therapy from your own private physician? Give name of your private physician.

If you are unable to employ a private physician, will you use existing facilities in hospitals, voluntary or municipal, which have extended their facilities for this work to you, to have your defects corrected?

At this point information will be elicited as to the reasons why the registrant refuses to accept remedial therapy from either his own physician or from existing hospital and clinical facilities. These social workers, because of their training, will be able to evaluate the reasons given and make a factual tabulation of the results of their inquiry.

In this way it is hoped to gather factual data on the number of registrants who will avail themselves of medical care if it were "brought to the door," speaking metaphorically.

These social workers have furthermore arranged to make visits to the homes of the registrants who seem recalcitrant, with the idea of persuading them to undertake voluntary remedial therapy. Then the task of persuading those found to be recalcitrant to the offers to help them will be undertaken. Visits to the home, talks with the wife or family and every other effort will be made to have the registrant voluntarily submit to having his correctable physical defects remedied.

When and if this work has been carried on for a length of time to warrant conclusions, I shall report further on this intensive, coordinated experiment in persuading those with obvious remedial defects to correct them voluntarily. However, I am still of the opinion that the larger majority of registrants will not avail themselves of the medical care which will be tendered to them—for very obvious reasons.

Therefore, I am prepared to offer, for future consideration, an alternate plan. This plan consists of an amendment to the Selective Service Law, to make it mandatory that an individual with correctable defects shall have remediable therapy undertaken, so that his correctable physical defects shall not permit him to avoid military service. I recommend this notwithstanding the fact that the majority of those disqualified for military service are engaged in gainful occupation at this time.

I would not have the compulsion in the proposed amendment to the Selective Service Law apply to the manner and means whereby the remedial therapy shall be carried out. The mandatory provision shall simply be directed to the end that the remedy shall be taken by the registrant, leaving him free to elect the man-

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Medical News

County News

Albany County

The annual clambake of the county society will be held at the Albany Country Club on September 10. Available sports will be swimming, tennis, baseball, and golf.

Bronx County

The county society elected the following officers at its meeting on June 18:

Drs. Abner Stern, president, Morris Cohen, president-elect, Frederick W. Williams, vice-president, Henry Friedland, secretary, Samuel Epstein, treasurer, Frank LaGattuta and Louis Steinbach, censors, Harry Projector, chairman of the Medical Economics Committee, Edward R. Cunniffe, chairman of the Legislation Committee, John B. Schwedel, Public Health Committee, and Henry Barrow, Public Relations Committee.

Drs. Moses Krakow, Edward R. Cunniffe, I. Lewis Amster, and Emil Koffler were elected delegates and Drs. Vincent Hayward, Frederick Williams, Renato Azzari, and Samuel Leo were elected alternates. Dr. Harry Aranow was elected to the board of trustees.

A paper was read by Dr. Ira S. Wile on "The Problem Child, Medical, Psychological and Social Aspects," with a general discussion.

The Public Health Committee is preparing to give postgraduate courses in physiotherapy, heart disease, and traumatic surgery.

The course in physiotherapy will consist of four to six lectures on the principles and methods applying in arthritis, peripheral vascular disease, sprain, trauma, and infections.

The course in heart disease will consist of seven or eight lectures covering its various aspects and will be given by Bronx County physicians who are members of medical and teaching staffs.

The course in traumatic surgery will consist of eleven sessions, and the subjects covered will include shock, burns, wounds, fractures, infections, sciatica and low back pain, bursitis, chest injuries, and diabetic extremities.

Chautauqua County

The tenth annual interstate summer meeting of the Chautauqua County Medical Society was held at the Chautauqua Institution on Chautauqua Lake on July 30. The excellent program and beautiful site made the day a most enjoyable one for the doctors, their families, and friends.

The program was as follows: "Treatment of the Menopause," round-table discussion, by Dr. Louis A. Siegel, chairman, Dr. Francis D. Leopold, and Dr. Gilbert M. Beck, of Buffalo; "Present Status of Chemotherapy"—medical aspects by Dr. Arthur C. Ernestine and surgical aspects by Dr. George Crile, Jr., of Cleveland; aspects by Dr. George W. Cottis, of Jamestown, New York; Dr. George W. Cottis, of the New York State Medical Society, opened the discussion, "American Medicine Prepares," by Dr. Morris Fishbein.

Luncheon was served in the Hotel Athenaeum,

and in the afternoon Dr. Fishbein spoke on "Medicine Moves Forward." This address was open to the laity. There was an afternoon concert by the Chautauqua Symphony Orchestra with Albert Stoessel, conductor, and Joan Peebles, contralto, was guest soloist. An evening concert was also given by the Orchestra. A golf tournament, held in the afternoon, provided much entertainment.

Chemung County

The annual outing of the county society was held Wednesday, July 2, at Cold Brook Club.

The outing was preceded by a golf tournament at the Elmira Country Club for the Doctor's Cup.

Activities at Cold Brook Club started at 3:30 p.m. with a doubles quoit tournament and a softball game with University of Buffalo alumni pitted against "the rest of the world." A steak dinner was served at 7:00 p.m., followed by a singing bee in charge of Dr. Joseph S. Lewis. The program announced that a lie swapping contest would run throughout the afternoon and evening.

Erie County

Designed to give more adequate medical care to Buffalo relief clients and at the same time to compensate physicians, the County Welfare Department's new medical plan became effective on July 1.

Welfare Commissioner Thomas W. H. Jeacock announced the appointment of five physicians as medical examiners, four pharmacists, and the transfer of four junior case workers as medical social workers.

The medical investigators who each will receive \$1,560 a year are: Dr. James E. Short, 303 Abbott Road, Dr. Jerome W. Romano, 468 Delaware, Dr. Roy C. Fisher, 625 Parkside Avenue, Dr. Richard M. Gardner, 131 Linwood Avenue, Dr. Harry Spiegelman, 532 East Ferry Street.

The pharmacists, to be paid \$1,200 annually, are: Theodore Stopen, Helmut, Frank C. Luango, Hamburg, Stephen N. J. Rubach, 1322 Sycamore Street, Louis E. Kramer, Gardenville.

The medical social workers whose salaries will be \$500 are: Mary A. Clark, 334 Rodney Avenue, Henrietta M. Hunt, 94 Freund Street, Anne M. Wherley, Lakeview, and Mildred E. Ahl, 424 Ashland Avenue.

Jefferson County

Dr. Daniel L. Borden, Washington, D. C., surgeon, was the guest speaker at the meeting of the county society at the Black River Valley Club on June 24. About 30 physicians attended. Dr. Borden, as president of the District of Columbia Medical Society, was an important witness in the law suit involving his society in a defense against socialized medicine tried in Washington during the past winter.

[Continued on page 1592]

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[Continued from page 1590]

Kings County

An article in the *Brooklyn Citizen* by Dr Charles F. McCarty, director of the medical activities of the county society, says in part

"The physicians of Brooklyn have responded to the present national emergency the same as they always have in the past. Over 937 physicians are, at present, serving the Government. A great many have given up their practices and are on active military or naval duty, while many more are serving as local draft board examiners or members of medical advisory boards.

"All physicians who serve as examiners on local draft boards or on medical advisory boards, serve without pay. Each member of the advisory board works from three to five hours per week. The number of physicians on local boards varies from one to six. The work of examining the men who are to be selected for military service for each of the local boards takes about twenty hours per week.

"All health matters connected with national defense are under the jurisdiction of the Committee on Military and Naval Affairs of the Medical Society of the County of Kings. The committee consists of Drs Thomas A. McGoldrick, chairman, Charles F. McCarty, secretary, John B. D'Albora, Maurice J. Dattelbaum, Edwin A. Griffin, John J. Master-son, William C. Meagher, Daniel A. McAteer, Philip I. Nash, Irwin E. Sims, and Thomas B. Wood.

"In order that the civilian population may be cared for in an emergency, the Medical Society of the County of Kings and Academy of Medicine of Brooklyn has conducted a survey of the hospitals of Brooklyn and has found that by using corridors, recreation rooms, reception rooms, and other available space in an emergency, the capacity of the hospitals can be increased by 3,313 beds. They have also found that nineteen hospitals are willing to provide catastrophe units. These will consist of physicians, nurses, and attendants with the necessary ambulances, instruments, and supplies to work outside of the hospital in a serious emergency.

"At present, the county society has a record of 340 physicians in Brooklyn who are in active military or naval service.

"Among other defense duties recently assigned to the county society are those of assisting the Red Cross in establishing a dry plasma bank and of assisting the Government in nutrition. The Brooklyn Chapter of the Red Cross is obtaining blood from donors in Brooklyn. The plasma of this blood will be dried and stored for use in a national emergency. The society has selected a panel of twenty-five physicians who will do a physical examination on these donors in order to determine whether they are capable of giving the blood. These doctors will serve without pay. A committee on nutrition of the society is also being formed. This committee will be composed of physicians who have specialized in diet and nutrition and will inform the public as to the type of food, obtainable in an

emergency, which may be used in order that all persons may be properly nourished."

The county society will give a dinner for its living ex-presidents at the Hotel St. George on January 17, 1942.

Nassau County

The Health Exhibit being prepared for the Mineola Fair, September 9 to 13, by the Nassau County Medical Society under the direction of J. Louis Neff, executive secretary, will become a permanent county institution, according to plans now being formulated by Mr. Neff. A permanent headquarters in a central location is now being sought, all as the result of the tremendous interest in public health created by the New York World's Fair health display. Mr. Neff is being aided by committees of the following Nassau County organizations in the preparation and handling of exhibits at the Mineola Fair, and due to the importance of the exhibit an entire wing of a building has been assigned by the Queens-Nassau Agricultural Society for the displays. Cancer Committee, Dr. Richard Derby, chairman, Dental Society, Dr. Herman Weinstein, president, Health Department, Dr. Earle G. Brown, commissioner, Medical Society, Dr. Charles W. Martin, president, Mental Hygiene Committee, Mrs. Henry Hill Anderson, chairman, Nutrition Committee, Miss Irma Bradford, chairman, Public Health Nursing Council, Mrs. Francis Gilbert, president, Tuberculosis and Public Health Association, Mrs. George E. Brower, president, and Woman's Auxiliary to the Medical Society, Mrs. Byron D. St. John, president. Helpful questionnaires and trained consultants will be features of the exhibit.

Oneida County

The Utica Academy of Medicine held its annual outing at the Teugega Country Club at Rome on June 19. The afternoon was given to golf, with dinner at 7:30. The speaker was Charles John Stevenson, Philosopher—Humorist—Newspaper Editor—Radio Commentator—Lyceum Lecturer, and his subject was "Doctoring with Pleasure."

Ontario County

The third quarterly meeting of the county society was held in the Geneva Country Club on July 8. Dr. A. D. Kaiser, professor of pediatrics at the University of Rochester, spoke at the scientific session following dinner on "Rheumatic Disease in Childhood."

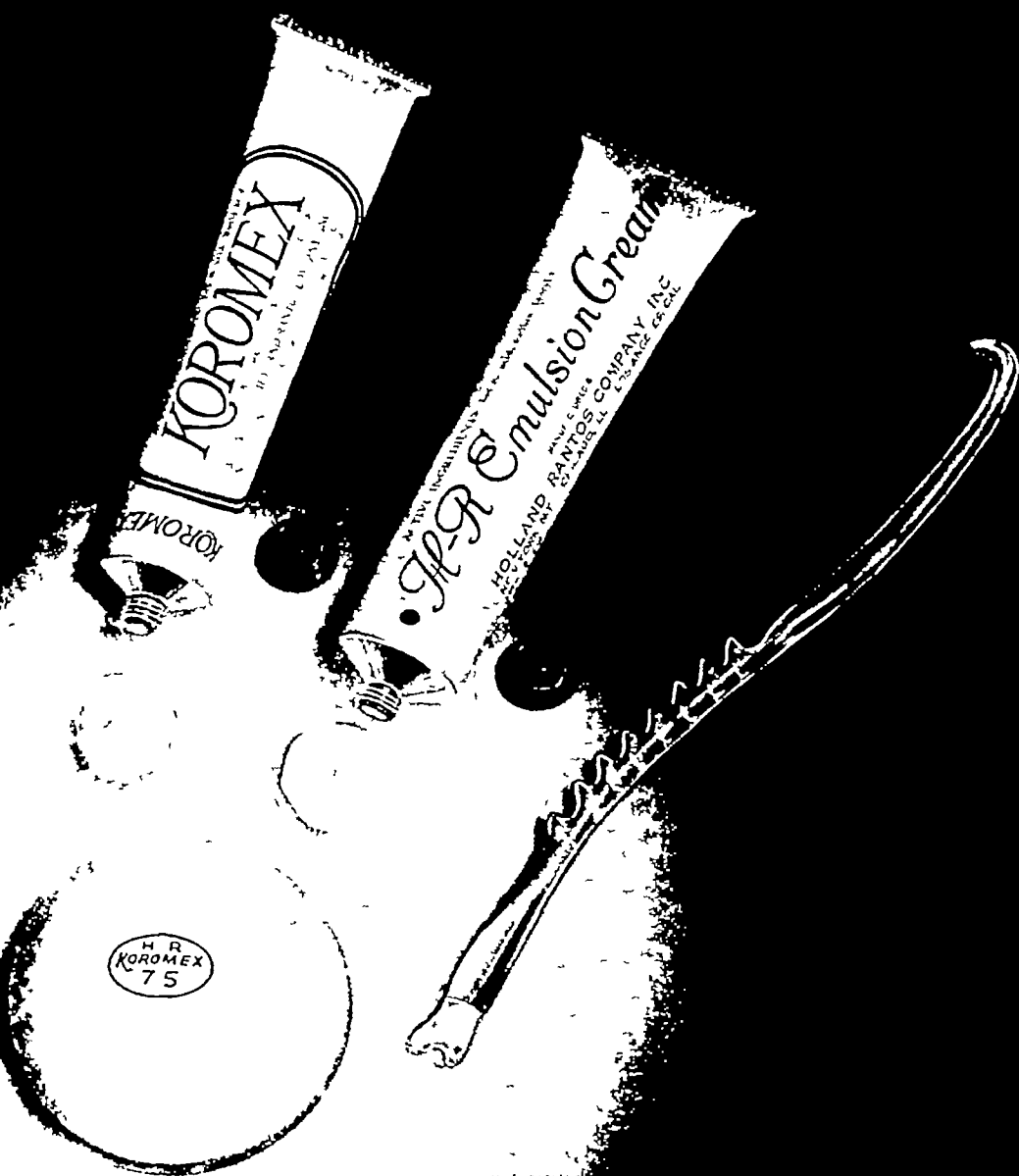
Otsego County

The county society held its regular quarterly meeting on June 11 at the Cooper Inn, Cooperstown. The final lecture of the 1941 post-graduate series was given by Dr. J. Hamilton Crawford of Long Island College of Medicine on the topic, "Some Common Problems in Cardiac Diagnosis."

Warren County

A motion picture, "Anemias," was shown at a meeting of the county society on July 2 in The Queensbury at Glens Falls and was at-

[Continued on page 1594]



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[Continued from page 1592]

tended by 50 physicians Dr E J Fitzgerald presided Dinner was served preceding the meeting

The society voted to endorse the forming of the Woman's Auxiliary to the society The auxiliary, which was formed recently, is headed by Mrs Leonard A. Hulsebosch.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
William W Aldrich	87	Dartmouth	June 24	Wevertown
Herbert Beck	75	Cracow	May 9	Manhattan
John L Bishop	65	Buffalo	June 10	Niagara Falls
Philip G Cole	57	P & S N Y	June 30	Manhattan and Tarrytown
George F Hanker	81	N Y Univ	May 9	West Kill
Abe M Hilkowich	65	Cornell	June 7	Manhattan
Abraham Kahn	48	L I C Hospital	May 9	Manhattan
Julus A Klahs	57	Detroit	June 9	Depew
Walter C Klotz	66	P & S N Y	June 29	Manhattan
Whittlesey D Lester	66	Albany	June 9	Schenectady
George Loewenthal	42	Univ Berlin	June 23	Rhinebeck
Domenico C Mauro	53	Albany	June 14	Mechanicville
William B May	83	Buffalo	June 28	Menands
Alexander McNamara	81	Buffalo	July 1	Lockport
James M Neary	52	N Y Hom	July 10	Brooklyn
Allen M Ottman	66	Albany	June 20	Rochester
Roy A Page	70	N Y Hom	April 27	Elmura
Nils G Rosen	62	Univ & Bell.	June 21	Brooklyn
Hannah M Stone	47	N Y Hom	July 10	Manhattan
Raymond J Stoup	63	Syracuse	June 11	Syracuse
Timothy D Sullivan	68	Jefferson	July 6	Manhattan
Lee C Van Wagner	71	N Y Univ	June 25	New Berlin
Oscar Watson	73	P & S N Y	July 10	Brooklyn
John H Weckel	84	N Y Univ	June 30	Syracuse
Hans Weil	43	Munich	May 8	Mount Vernon

STERILIZATION OF THE AIR BY A GERMICIDAL MIST

The effective sterilization of air by a germicidal mist is reported in *Science* by Drs O H Robertson, Edward Bigg, Benjamin F Miller, and Zelma Baker, of the University of Chicago Medical School, notes the *Medical Record*. According to Dr Arthur C Bachmeyer, associate dean of the Division of the Biological Sciences of the medical school, the method promises to achieve sterile air in sick rooms and crowded places, as well as in industrial fields, and to reduce markedly the spread of such infections of the upper part of the respiratory tract as pneumonia and common colds. Its possible applications in war conditions are widespread, according to Dr Bachmeyer, particularly with regard to the problem of germ-laden air in such places as air-raid shelters and barracks. Two medical groups in England are already working in this field, though their results in war experiences have not been reported.

The germicidal mists, or aerosols, found effective by the investigators, consist of minute droplets of propylene glycol. The effectiveness comes from the fact that each droplet of the aerosol contains the same concentration of the effective chemical substance as does the parent solution and, therefore, the antibacterial agent is

enabled to act in high concentration on bacteria suspended in the air. In the quantities employed the product appears to have no poisonous effect on humans.

These investigators tested both the spraying of the mist on bacteria and the spraying of bacteria into the mist, which would be tantamount to a cough or sneeze. They found the mist effective in destroying the bacteria in both instances.

Hitherto, sterilization has been effected by the application of germicides to germ-laden objects (such as floors, furniture, or instruments) by fumigation, or by ultraviolet rays. In the first method the air is not affected. In the second, the fumigating compound is poisonous to humans as well as germs and cannot be used to kill the bacteria in the presence of humans. Dr Bachmeyer suggests that the aerosol method is likely to be more effective and less costly than the ultraviolet ray equipment. While the effectiveness of the germicidal spray in the reduction of diseases of the upper part of the respiratory tract cannot be gaged accurately without extensive clinical studies, he said, the approach is in keeping with efforts of scientists to prevent as well as cure disease.



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[Continued from page 1592]

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Hospital News

Defense Demands Causing a Nurse Shortage

HOSPITALS around the state are reporting that the defense demands are draining away their supply of competent nurses. As one newspaper puts it, "the American nurse, angel of mercy, ministering to the sick and wounded, whose courage and skill have made her an idolized figure and blazed her name on the pages of history in every struggle that the nation has faced, is answering the call for 6,000 of her profession," and the shortage of nurses "is moving into the acute stage."

To take one example out of many, "the Syracuse hospitals find themselves facing a shortage of trained registered nurses that is daily taking on more serious proportions," reports the *Post Standard* of that city.

University Hospital Hard Hit

It seems that while every hospital is feeling the loss of its trained nurses, University Hospital is the hardest hit.

Dr. Louis M. Hickernell, superintendent, said that the number of nurses who have left that hospital has made it necessary to close one of the smaller pavilions, which means that all of the beds in it must remain empty.

"This hospital, like every other hospital in Syracuse, is anxious to cooperate 100 per cent with the national defense program," said Dr. Hickernell, "but our situation as to a sufficient supply of experienced trained nurses is taking a serious turn. With industry working at top speed and pressure being applied to keep it so, the home front must receive serious consideration."

"Undoubtedly we are going to lose many more of our trained nurses. War has a glamour for them as it does for all patriotic citizens when the nation and its liberties are threatened."

"This emotional disturbance often blinds one to other duties. Unquestionably we must have some trained nurses at home. It takes courage to go to war, but it often takes more courage to remain at home," he remarked.

"Our span of life has been steadily increasing. In the past 150 years the average span has risen from 31 years to 62 years. There has been a rise since the last war. This means that every community has more older people than in years past and old people are more likely to become ill than young people. Then we have these added men in high speed industry and every walk of life living under a tremendous strain."

Male Nurses Help

Dr. Hickernell said that at University Hospital work of the depleted staff of trained nurses is being lightened as much as possible by male nurses and by men who are being enlisted to assist in the capacity of orderlies. Practical nurses from schools in Rochester and Albany have been brought in to assist. Other hospitals are taking steps to supply helpers for their trained nurses.

The hospital council, composed of members of the executive staffs of University, Memorial,

Crouse-Irving, St. Joseph, Syracuse General, St. Mary's, and City hospitals, in cooperation with the local Red Cross chapter, has conducted a volunteer survey and set in motion the organization of two groups, with Miss Miriam Curtis, superintendent of Memorial, as chairman of a committee on volunteer service subsidiary workers.

Group Organized

One group, the "Grey Ladies," already has been organized, recruited from the hospital auxiliaries. This group comprises 189 women who are taking a course of twelve lectures extending over a month's time. Mrs. Ralph Haven is chairman of this group. When they have completed their course they will be uniformed and take up their duties.

The "Grey Ladies" will have eight committees. The hostess committee will take over such duties as directing visitors at the hospitals, regulating visiting hours, and other functions. The visiting committee will work among convalescent patients, reading to them, writing letters for them, doing errands, and performing other services. The library committee will provide and aid in selecting books.

Work with Children

The children's committee will work among children patients. The ward, clinic, and secretary committee will take over such duties as answering telephones, taking and delivering messages, procuring charts from the record room, and assisting nurses in many other ways. The surgical dressing committee will make and prepare dressings. A sewing committee will sort, mend, and store linens, and the flower committee will collect, distribute, and arrange flowers, Miss Curtis explained.

This fall the more important hospital aid or "Pink Lady" committee will be organized through the Red Cross chapter. This committee will receive a short course of one hundred hours of intensive nursing training under a paid instructor which, it is hoped, the Red Cross chapter will be able to finance.

Another contemplated step is a call to trained nurses who have married and ceased the practice of their profession. It is probable, Miss Curtis said, that these trained women will be asked to volunteer their services for a few hours a day, and it is expected that if such a call is issued that there will be an excellent response.

Medical Care Offered in New Hospital Plan

COMPLETED plans for provision of medical, as well as hospital, care for persons of limited income are announced by the Associated Hospital Service, which serves 1,250,000 subscribers in the metropolitan area at a cost of 3 cents a day.

[Continued on page 1538]

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Yet there are such individuals and we hear of them continuously in science and medicine. We find it often a case in medical men who devote their lives to providing special sanitariums for the service of their colleagues

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The undertaking cited is not an exception. Most of the fine institutions serving the medical profession have been inaugurated because of equally fine motives

Of course it takes more than a "fine motive" to make a useful service, but it does help and does serve to establish greater confidence in the efficiency of the service

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[Continued from page 1596]

The new plan, announced by Dr S S Goldwater, president of the service, will give subscribers hospital care and service in wards and will pay physicians' fees for the hospitalization period.

Hospitals and physicians in New York and 11 neighboring counties have been invited to participate in the program. Dr Goldwater said that subscribers will be admitted as soon as a sufficient number of hospitals and doctors have been enrolled.

The combined service will be limited to individuals earning \$1,200 a year or less, couples with a combined income of \$1,680, and families with \$2,100

Community Medical Care Inc, a new organization representing the physicians, and the Associated Hospital Service will share the fees equally

The counties in which the service will operate, in addition to the five of New York City, are Nassau, Suffolk, Westchester, Putnam, Dutchess, Columbia, Ulster, Orange, Rockland, Sullivan, and Delaware

Cost to subscribers will be only slightly higher than that now charged for hospital service alone. Individuals will pay \$12 a year and families \$27, regardless of the number of children. Maternity care is included in the latter rate.

The present plan costs an individual \$9 60 a year and a family \$24.

Newsy Notes

The Oneida City Hospital has purchased a new x-ray machine at a cost of \$9,880

. . .

The Onondaga General Hospital has a new ambulance, described in the local press as "a veritable hospital on wheels"

. . .

The Roosevelt Hospital, New York City, in conjunction with its Allergy Department has opened a new eczema clinic for the study and treatment of eczema from infancy to six years of age. The clinic is held on Wednesdays from 9 30 to 11 00 A.M.

Prize Essays

THE Merrit H Cash Prize and the Lucien Howe Prize will be open for competition at the next Annual Meeting of the Medical Society of the State of New York, April 27, 1942, in New York City

The Lucien Howe Prize of \$100 will be presented for the best original contribution on some branch of surgery, preferably ophthalmology. The author need not be a member of the Medical Society of the State of New York.

The Merrit H Cash Prize of \$100 will be given to the author of the best original essay on some medical or surgical subject. Competition is limited to the members of the Medical Society of the State of New York, who at the time of the competition are residents of New York State

The following conditions must be observed

Essays shall be typewritten or printed with the name of the Prize for which the essay is submitted, and the only means of identification of the author shall be a motto or other device. The essay shall be accompanied by a sealed envelope having on the outside the same motto or device and containing the name and address of the writer

If the Committee considers that no essay or contribution is worthy of a prize, it will not be awarded.

Any essay that may win the prize automatically becomes the property of the Medical Society of the State of New York "to be published as it may direct."

All essays must be presented not later than February 1, 1942, and sent to the Chairman of the Committee on Prize Essays of the Medical Society of the State of New York, 292 Madison Avenue, New York.

CHAS GORDON HEYD, M.D., Chairman
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Sanitariums are well able to supply diversions for invalids and convalescents. It isn't always so easily and efficiently taken care of when the patient is confined to his or her own house.

Every physician knows how irksome an illness can become especially in the stages when pain and immobility are less acute. Yet this need not be made a time of thorough misery even in the home nor should the patient be permitted to indulge in absolute inactivity.

Prescribing amusement may appear a trifle far-fetched to many physicians, although it is not unlikely that they would enjoy a good dose of this kind of medicine many times themselves. There are a thousand and one ways to banish monotony, and a physician might also add to his "how do you feel today?"—"what have you been doing?"

A physician recognizing how much a diverted mind can aid in speeding recovery would not hesitate to store up a good knowledge of simple amusements that he might suggest and change each day. Books and radio will pall if a person has to spend days reading or listening.

Sometimes, the patient will hit upon some simple amusement himself that may eventually prove to be not just a pastime but the foundation for a future life work when fully recovered. There is the case of a poorly educated man laid up with a broken leg. In some manner he discovered the idea of dictionary research

work. Perusing a page a day as religiously as some folks do the Bible, he marked down all words new and unusual to him. These he pored over the rest of the day. It is not at all strange and startling that this man became a most interesting talker after convalescence.

There are hundreds of other amusements just as inexpensive and constructive that are safe and untiring physically. And just as many that provide enough activity to keep muscles and joints supple. There are a number of simple handicrafts for both men and women, there are games and many objects that can be made from common and inexpensive materials.

Musical instruments (of a sane type) may also provide the means of whiling away time constructively. Correspondence courses are available when teachers are not.

If you do not feel up to being an amusement director, a word to a member of the patient's family will often serve as well. There are many books on the market that will provide pages and days of "something to do" for the man, woman or child who can't get about.

One of these books, published in England and compiled by a woman with keen interest in the matter, contains even such interesting items as character reading from the face, character told by handwriting, tricks with cards, training the voice, writing short stories, writing poetry, sketching with pen and pencil, and among many other suggestions a chapter on ten-minute amusements.

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OUR LATIN AMERICAN COLLEAGUES

In twenty Latin American countries, according to recent checked figures of a mail service company, there are 40,260 physicians, 12,700 dentists, 20,687 druggists and 3,753 hospitals.

In number of physicians they rank—Argentina 10,787—Brazil 10,203—Mexico 4,460—Cuba 2,992—Colombia 2,558—Chile 1,930—Uruguay 1,605—Venezuela 1,085—Peru 952—Ecuador 775—Puerto Rico 567—Bolivia 385—Salvador 368—Honduras 289—Dominican Republic 273—Guatemala 251—Nicaragua 243—Paraguay 238—Costa Rica 160—Panama 139.

Some comparison of the distribution of physicians in these countries may be made with our own country. Greater New York alone has some 3,000 more physicians than the top-ranking Latin American country. Yet the metropolis has 5,000,000 less in population.

In hospitals the same order of rank holds generally true with but a few changes. Argentina with 640 hospitals is about on par with New York State (exclusive of

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Editorial

You Can Lead a Horse to Water, but—

Under the title "Health of the Nation and National Defense" the *New England Journal of Medicine* for June 12, 1941, comments "Seventy per cent of the young men in this country are being judged by proper authorities to be physically unfit for 'full military service' It is for the medical profession on the one hand and the laity on the other to see to it that this percentage is materially reduced, not only in times of war, but also in times of peace"

With this conclusion we are in all-out agreement The *Journal* says further "It is idle to argue that the Army regulations are unduly strict, for in modern warfare there is no place save for those who can 'take it'" Modern warfare as we hear of it today was born in the laboratory of the revolution in Spain. Until 1938 the Army itself was nearly, if not completely, devoid of any of the reorganization and material necessary to the conduct of the high-speed warfare now being demonstrated in Europe. Since the demobilization of the armed forces in this Nation following the first World War, we have been seeking security of a material and pacifist character. This quest has been characterized by self-indulgence and easy living, a fatuous faith in all sorts of Maginot lines, wide oceans, government spending, and a firm belief in the validity of our Utopia.

National health cannot be imposed upon the people by the physicians. It must be desired by the people themselves

and attained with the advice and assistance of physicians and many other co-operating agencies. It is evident that the people have been satisfied until now with a state of national health based upon a low standard. Bad teeth and eyesight have in no way interfered with their ability to sign government checks, nor have their hernias or infected tonsils or perforated eardrums precluded the driving of automobiles or listening to good advice over the radio. We must not forget that we have been living in a civilized paradise in which everything has been made easy.

Then the sudden imposition of a rigorous physical examination by the Selective Service boards and the Army in a sudden abandonment of fatuity in favor of reality. And a hue and cry about rejections! These rejections have not changed the condition of the national health. It is just as good now, even better, if the falling national death rate is any index, as it has ever been. But it is suddenly being measured by a more rigorous standard. This standard is based upon the necessity in modern high-speed warfare of shutting men up in tanks or placing them in reconnaissance cars or "boneshakers" where their anatomies must withstand all the familiar gyrations of the well-known cocktail shaker many times magnified amidst the noise of guns, the dust, and fumes of hot oil and engine gases. Or it contemplates placing men in airplanes flying

at 400 miles per hour, diving at even greater speeds, and so on. Assuredly, men have to be able to "take it," and how! Certainly, the large percentage of rejections should be reduced by the employment of every agency at our command. But the drive to achieve this must have public acceptance and co-operation. The medical profession and the many agencies concerned with the betterment of the private and public

health have until recently geared their activity to the necessities of peace. Now that activity must be indefinitely increased. Within reason, the national health can be much improved with the active cooperation of the public but only, be it understood clearly, if the public really desires it and will do something about it. It is still only too true that you can lead a horse to water but you can't make him drink.

Strikes in Hospitals

Pittsburgh and Allegheny County in Pennsylvania have recently been the scene of strikes in hospitals. That such a situation could occur is extraordinary to say the least. It recalls the Boston police-strike threat of which Calvin Coolidge, then Governor of Massachusetts, said "There is no right to strike against the public safety—by anybody, any time, anywhere." Nevertheless, as reported in the *J A M A*¹ "In a strike called at the West Penn Hospital on April 18, maids, orderlies, and employees in the nurses' home, in the engineering division, and in the garages were called out, there were threats of violence, actual violence, and establishing of picket lines. The window of an ambulance leaving the hospital was smashed and, altogether, a serious situation was created affecting the lives and health of all the patients in the hospital. On April 19 a court of Allegheny County granted an injunction restraining the defendant and its members from interfering with, hindering, or obstructing the conduct and operation of the West Penn Hospital." Previously the *Journal* has referred to a decision by the Supreme Court of the State of Pennsylvania, which said on January 6, 1941 "A hospital is not an industry. It has not been the custom in the past to unionize hospitals. The effect of unionization and attendant efforts to enforce demands would involve results far more sweeping and drastic than mere property rights."

"The questions of profits for the employer or wages for the employees are not alone involved. It is not merely a matter of suspending operations, ceasing work, and stopping production, such as might be true in a steel mill or automobile factory. It is a question of protecting the health, safety and, in many cases, the very lives of those persons who need the service a hospital is organized to render."

The strike was called by workers associated with the Congress of Industrial Organizations. There was picketing, interference with the removal of garbage and the delivery of food, and the removal of patients who desired to use taxicabs.

Concerning this strike, a member of Congress is said to have inquired why the violators of the law in the State of Pennsylvania were not prosecuted by the proper authorities of that state. The Supreme Court of the State had said in January "The effect of unionization and attendant efforts to enforce demands would involve results far more sweeping and drastic than mere property rights. It is a question of protecting the health, safety and, in many cases, the very lives of those persons who need the service a hospital is organized to render."

"Not one of the hospitals," said the *J A M A*, "is engaged in any trade or business." Each of the hospitals concerned is a nonprofit, public, charitable corporation. The work of hospitals concerns the public safety. The public

safety includes that of union members, legislators, Supreme Court judges, garbage collectors, and labor leaders, as well as law-enforcement agents, their wives, and children. The kind of brutality and callousness that permits leaders of labor to carry the technic and practices of coercion into the work of hospitals does not seem to give a damn for the public safety and is exemplified by the recent California strike in a national defense

industry to control which the Army had to be called out

Are we to suppose that in the future hospitals may have to be operated under protection of armed guards because of such unchecked rapacity? Occurrences of this kind may "involve a responsibility that reaches high in the government not only of the State of Pennsylvania but also of the United States." There is plenty of law, let it be enforced

How Much Is Enough?

This Nation has always been considered fortunate in that it has had a superabundance of things, raw materials, manufacture, church buildings, and even bright ideas. At what point do they become a liability?

Medicine in America may well ponder this question. Because the answer involves physicians as well as laborers, politicians as well as producers of goods. For goods, government, and ideas become rapidly obsolete. The more you have of any of them the more obsolete equipment, physical and spiritual, you are apt to have on hand. And in a fast-moving world, obsolete equipment becomes a liability.

If you have enough government, for example, you can progress, if you have too much you become retarded by the weight of junk you must drag along by taxes which support but do not produce. If you have ideas enough you can keep the wheels of industry turning and men producing, if you have too many ideas men's minds become confused and tend to glorify the obsolescent past and the junk they knew or thought they knew to be worth something.

The present world revolution beneath the surface of its wars is a vast effort to jettison the obsolete. Even the wars are not so destructive as the fury of the political revision, the structural razing, which many will not see, and fewer still believe. How then will it be, how is it now with us who have too much of everything—

too much government, too many resources, too many ideas, too much luxury, even too much medicine? How much is actually needed? How much is obsolete?

We do not, will not, face the reality of the debt structure. And yet it is evident that henceforth we must do more with less. The waste must be eliminated and a real program of conservation initiated. Obsolete equipment, physical as well as intellectual and emotional, will have to go. It is a luxury we can no longer afford, it is expensive junk.

It seems to us that the Committee on Medical Economics of this Society might well initiate a study of what is now obsolete in medical practice and medical organization. How much junk, deadwood, and falderal have we allowed to accumulate, expensive ways of doing things which could be simplified, obsolete procedures rooted in custom which could be thrown out. How much duplication of effort exists in medical practice and procedure? A good many of these have been developed in an expanding peace economy. It is self-evident that some of them will have to be revised, perhaps scrapped altogether in a total war economy such as we shall see in the next few months swing into full stride.

It appears to us to be stupid to shut our eyes to self-evident necessity. What must be junked, what should be saved? What can safely be contracted, what services or practices or procedure should

be expanded? Government has given little or no leadership in this field of planning, we are not aware that responsible groups in organized medicine have thought much about it, much less done anything. Resources have been surveyed it is true, but who has studied the obsolete usages of medicine, who can say

with authority how many appendices, diverticulae, vestigial tails, and assorted junk we carry complacently along because we have always done so. How much is enough, and have we too much? Too much is vastly more dangerous than not enough, especially when it is obsolete

Physicians for Britain

During the meeting of the House of Delegates at Buffalo, 1941, a resolution was introduced [see *New York State J Med* 41 1278, Section 25 (June 15) 1941] instructing the Society to call upon the A M A for a statement of its policy with respect to foreign service for American physicians. This was favorably reported and passed. It was duly transmitted to the A M A.

The following facts were published in the *J A M A*¹ relating to this matter: "By June 23, 1,343 inquiries had been received, 643 applications had been mailed in response to the inquiries received, 69 physicians who applied had been rated as professionally unqualified, 67 had been pronounced professionally qualified, but of these 2 have withdrawn their applications, 52 applicants are awaiting the decision of the committee, and 33 have been pronounced eligible for a visa. Fifteen applicants are now in process of having physical examinations completed, and 17 have been pronounced physically fit. Actually 2 men have been granted United States passports and 15 have reached the stage where they are awaiting passports. The total figure of physicians apparently ready to go or likely to be made available is about 65, with an additional 25 still in process before the committee. This will mean that by the middle of July approximately 90 men will be the response to the request.

"Since the announcement was first made a statement has come from Great

Britain authorizing the acceptance of married physicians, who will be on the same basis, salary, and allowances as unmarried men except when the total pay for British married officers of the same rank exceeds that for American single men, in such cases the higher rate will then be paid. For the emergency medical service married men will be accepted on the same terms as are single men. The British Red Cross also announces that 10 women with equal qualifications will be acceptable on the same terms as are men. With these additional announcements 17 more physicians, formerly considered ineligible, become eligible."

The *Journal* comments further:

"The total response to the request from Great Britain is not especially gratifying. In explanation, it may be pointed out that American medical publications and organizations have been repeatedly informed that our own need for physicians is considerable and will be met only with the greatest of difficulty. Already one medical school has announced an increased enrollment of 10 per cent to meet the increased demand for medical men. However, increasing enrollments in medical schools will not make additional physicians available until six years from now. The news from abroad and from Washington seems to indicate constantly the threat of the entrance of our own nation into the war. This also has unquestionably influenced many physicians to withhold enlistment in any military service until the needs of our own country shall have been satisfied."

¹ J A M A 117 No 1, 37 (July 5) 1941

Medicine's Present Job

"What is there left," cries the *Nassau Medical News*¹ out of the fastnesses of the Long Island pine barrens, "in this changing world? One by one our old landmarks topple and fall. Bit by bit our accepted truths are found to be false, that which we have known to be false is proven true. Where do we stand? What comes next?"

When has medicine or anyone else ever known what comes next? The *Nassau News* quite properly foresees "constantly increasing demands made upon us physicians to serve with the armed forces difficulty in securing interns and residents for our hospitals", civilian doctors having "to assume a greater burden in the matter of house and office calls", and the necessity for "the training of the younger physicians against the day when they must be fitted into larger staff groups or take the place of men called away from the community by the war effort."

But this is somewhat aside from the question implicit in the observation that "Bit by bit our accepted truths are found

to be false," etc. If this is so, why do we physicians continue to teach the old truths? Why bother about it? The things we do are based on the "accepted truths", for we know no other kind. We are constrained to follow the only paths we know, and to teach the "accepted truth" in the sense that it has been proved by experience.

In a world full of labile propaganda, the truth, in a political sense, is what some group wielding power desires it to seem to be. It is not necessarily the same yesterday, today, and tomorrow, for, politically, truth is the servant of power and the handmaiden of ambition. From ancient times it has been asked "What can a man believe?"

Medicine's present job, aside from the practical one of caring for the sick, is the preservation and the teaching of the "accepted truths" amid the chaos and destructive influence of world revolution. It may have to be done in the debris of demolished things, from cellars and fox-holes, amid the ruins of civilization as we have known it, but it will be done, it is our job.

¹ *Nassau Medical News* 15 No. 6 (June) 1941

How to Live Longer

Survivors of the 175 graduates in medicine of the Class of 1900, College of Physicians and Surgeons, Columbia University, New York, averaging 67 to 68 years of age, are undertaking a novel experiment in preventive medicine. They have formed a committee of longevity to administer complete medical examinations to one another. There are 102 living members of the class scattered from Syria to Columbus Circle and points north, south, east, and west.

Can medical men prolong life expectancy? Here is a chance to find out. The members of the Class of 1900 not only hope to extend their average life expectancy, but to increase their comfort in living their longer lives. The experi-

ment may prove to be a notable contribution to the science of gerontology. The idea is so eminently sensible and practical that one wonders why it has not been previously tried. Physicians in all ages have experimented upon themselves for various reasons—to discover the effect of drugs, to try out methods of immunization, for example. The present experiment is one that logically follows the development and widespread use of health insurance from which, however, the average physician—or his estate—can benefit only in an economic sense.

When one examines the reasons why any group of men in these times should desire to live longer, one is forced to the conclusion that such reasons must be

be expanded? Government has given little or no leadership in this field of planning, we are not aware that responsible groups in organized medicine have thought much about it, much less done anything. Resources have been surveyed it is true, but who has studied the obsolete usages of medicine, who can say

with authority how many appendices, diverticulae, vestigial tails, and assorted junk we carry complacently along because we have always done so. How much is enough, and have we too much? Too much is vastly more dangerous than not enough, especially when it is obsolete

Physicians for Britain

During the meeting of the House of Delegates at Buffalo, 1941, a resolution was introduced [see *New York State J Med* 41 1278, Section 25 (June 15) 1941] instructing the Society to call upon the A M A for a statement of its policy with respect to foreign service for American physicians. This was favorably reported and passed. It was duly transmitted to the A M A.

The following facts were published in the *J A M A*¹ relating to this matter: "By June 23, 1,343 inquiries had been received, 643 applications had been mailed in response to the inquiries received, 69 physicians who applied had been rated as professionally unqualified, 67 had been pronounced professionally qualified, but of these 2 have withdrawn their applications, 52 applicants are awaiting the decision of the committee, and 33 have been pronounced eligible for a visa. Fifteen applicants are now in process of having physical examinations completed, and 17 have been pronounced physically fit. Actually 2 men have been granted United States passports and 15 have reached the stage where they are awaiting passports. The total figure of physicians apparently ready to go or likely to be made available is about 65, with an additional 25 still in process before the committee. This will mean that by the middle of July approximately 90 men will be the response to the request.

"Since the announcement was first made a statement has come from Great

Britain authorizing the acceptance of married physicians, who will be on the same basis, salary, and allowances as unmarried men except when the total pay for British married officers of the same rank exceeds that for American single men, in such cases the higher rate will then be paid. For the emergency medical service married men will be accepted on the same terms as are single men. The British Red Cross also announces that 10 women with equal qualifications will be acceptable on the same terms as are men. With these additional announcements 17 more physicians, formerly considered ineligible, become eligible."

The *Journal* comments further:

"The total response to the request from Great Britain is not especially gratifying. In explanation, it may be pointed out that American medical publications and organizations have been repeatedly informed that our own need for physicians is considerable and will be met only with the greatest of difficulty. Already one medical school has announced an increased enrollment of 10 per cent to meet the increased demand for medical men. However, increasing enrollments in medical schools will not make additional physicians available until six years from now. The news from abroad and from Washington seems to indicate constantly the threat of the entrance of our own nation into the war. This also has unquestionably influenced many physicians to withhold enlistment in any military service until the needs of our own country shall have been satisfied."

¹ J. A. M. A. 117 No. 1, 37 (July 5) 1941

his being "employed as a physician at the hospital for about three months and among other duties" having had "charge of the institution pharmacy"

The story seems to indicate that investigation of the qualifications of employed physicians, at least by this employing hospital, was lax. In view of the

increasing shortage of narcotics due to disturbed conditions of trade, it is highly probable that more instances of this sort will occur. It should be a warning not only to hospitals but to all physicians who are practicing in the state to increase their vigilance where narcotics are concerned.

Special Article

Cooperating for National Defense*

J. EDGAR HOOVER, *Director, Federal Bureau of Investigation, United States Department of Justice, Washington, D. C.*

WITHIN recent months the urgent necessity of cooperation in the prosecution of war has been demonstrated over and over again on the battlefields of the Old World. Planes, guns, and ships in and of themselves cannot win, but when used together, each supporting the others, successful campaigns have been launched.

Working together to attain a goal is equally as important in times of peace when a nation is striving to make itself secure from enemy assaults both from within and without. Today our American democracy is threatened. Its future will be determined by our willingness to cooperate for national defense.

Of utmost importance in guarding the internal defenses of the Nation is sane cooperative effort, without fanfare and needless publicity. In the era of World War I there was much confusion and duplication of effort. Private groups and numerous law enforcement agencies performed national defense investigations. There was no centralized authority. In the early summer of 1939 the President of the United States, profiting by the mistakes of the past and realizing that sabotage and espionage are never local in character, selected the Federal Bureau of Investigation to head the drive on the enemies within. Later, in September of the same year, the Chief Executive requested all law enforcement officers to cooperate in this vital work by referring any facts coming to their attention indicating possible violations of our national defense statutes to the nearest office of the FBI.

The Law Enforcement Officers Mobilization Plan for National Defense resulted

from the coordination of national defense activities, and through this Plan law enforcement as a whole is cooperating more closely than ever before. Regular quarterly conferences with local officers are being held throughout the country by the local FBI offices. Dozens of such meetings have been sponsored by the Albany, Buffalo, and New York City offices of the FBI in the State of New York. These have been exceptionally well attended and the local police, the sheriffs, and the state police are actively assisting in the investigation of national defense cases.

The FBI is also maintaining extremely close cooperation with officials of the Military and Naval Intelligence services. Frequent conferences are held in Washington and throughout the country between officials of the FBI and representatives of these agencies. There is a mutual exchange of information which will be of value to the other organizations.

Industry itself is now in high gear and is responding wholeheartedly to suggestions for greater protection against spies and saboteurs made by the FBI as a result of its plant survey program. The surveys were instituted in 1939 at the request of the War and Navy departments and already over 1,600 vital plants having contracts for war materials have been gone over thoroughly by trained special agents of the FBI. The sole concern is to prevent sabotage. The Federal Bureau of Investigation has no interest in legitimate labor relationships.

The citizen himself can also assist in the current emergency. Professional men, doctors, lawyers, teachers, and others occupy a unique position. They are highly trained. They

purely scientific We hope that, the experiment having been initiated, some fifty years hence no hardy survivor may sigh

“ there’s the respect
That makes calamity of so long life,
For who would bear the whips and
scorns of time,
The oppressor’s wrong, the proud man’s
contumely,

The pangs of despised love, the law’s
delay,
The insolence of office and the spurns
That patient merit of the unworthy
takes,
When he himself might his quietus
make
With a bare bodkin?”¹

¹ Hamlet, Act iii sc 1

Needed Information

The State of Massachusetts is now experimenting with prepaid medical care in a manner which is new and which may furnish in time information that, in our opinion, is sorely needed. The State Legislature has passed two bills—one, sponsored by the State Medical Society, creates the usual voluntary health insurance plan approved by the A.M.A., the other permits participation only by duly licensed physicians, places control, however, under the State’s public health authorities. The latter is known as the White Cross Medical Service plan.

The first of these plans emphasizes actuarial soundness and places voluntary insurance under the control of the State Insurance Department. The second regards the quality of medical service as the primary consideration and permits those physicians who serve it to practice under any system of their choice.

After all, wide distribution of good

medical care, hospital and medical service, is the objective of all acceptable insurance plans. Everybody is agreed on this.

How it should be accomplished is another matter. Owen Wister in *The Virginian* observed that there were many religions but only one God. The same observation may be pertinent to the distribution of medical care, certainly, each of the forty-eight states has a medical problem of its own, to be solved by whatever method seems to fulfill its individual necessities. This seems to lend added weight to the Massachusetts experiment and to recommend comparable action by other states. We hope that the progressive experimentation will yield facts and figures by which the medical efficiency of both plans may be compared. Such facts and figures are badly needed in a field that still unfortunately abounds with speculation and conjecture.

Warning

On June 12 of this year “Dr F C Quitareau,” who posed as a physician under at least seven different aliases, came under investigation by the Bureau of Narcotic Control of the New York State Department of Health. He was arrested in Rochester for falsifying the narcotic records of an upstate hospital, a violation of Article XXII of the Public Health Law, according to an article published in *Health News* of July 7. He was tried by jury and sentenced, on June 23, to one year in Monroe County penitentiary.

“Dr Quitareau” had never qualified, it is stated, as a physician in the State of New York, nor had he, apparently, completed a medical course. He had been dismissed from the staffs of several hospitals and had a criminal record of five other arrests.

One reads with satisfaction of the apprehension and punishment of such an offender by the Bureau of Narcotic Control. For a year, at least, he will not falsify any more hospital records, but after that—what? His five previous arrests or his seven aliases did not prevent

UNDULANT FEVER WITH VISUAL DISTURBANCES

LEONARD W JONES, M D , and JOHN L NORRIS, M D , Rochester, New York

UNDULANT fever, known also as Malta fever, Mediterranean fever, goat fever, and brucellosis, has been epidemic for years on the Island of Malta under the name of goat fever. It was called Malta fever because of the epidemic in the Malta garrison and in the civilian population of the island from 1898 to 1904 when there were 2,229 cases with 77 deaths. It was called Mediterranean fever because of its prevalence along the shores of the Mediterranean. Goat fever naturally came from the fact that in Malta and the Mediterranean the disease was spread through the agency of goat's milk, and some 10 to 15 per cent of the goats on the island of Malta were found to have the micrococcus in their milk. It was given the name of brucellosis because of the work of the British Army surgeon, Sir David Bruce, who in 1886 isolated an organism, the micrococcus melitensis, from the spleen and blood of goats and of human beings and definitely proved the animal etiology of the disease. The name undulant fever is descriptive of the wavelike character of a victim's temperature curve.

The headaches, neuralgias, arthritic effusions, and tendency to chronicity of this animal-borne disease are all well known and freely described and discussed in textbooks and journals. We have yet to find a textbook in which anything is said as to eye symptoms or eye complications in association with undulant fever, although such phenomena and possibilities are beginning to appear in the journals. Some 5 cases of undulant fever with papilledema and cases of iritis in brucellosis patients have been reported. But on the whole the literature on undulant fever in its relation to eye pathology would seem to show that there was little or no connection between the two. Experiments on guinea pigs and white mice in which these animals were injected with *Brucella abortus* failed to produce any pathologic lesions in some forty eyes examined.

There is an eye disease occurring in horses—a recurring uveitis, a periodic ophthalmia bearing the popular name of "moon blindness." This disease is described by Burky, Thompson, and Zepp, and these authors suggest that this uveitis may be a manifestation of brucellosis. These authors were also able

Read at the Annual Meeting of the Medical Society of the State of New York, New York City, May 7, 1940.

to produce in rabbits a recurring iridokeratitis resembling "moon blindness" by injecting the anterior chamber of rabbit's eyes with a culture of *Br. abortus*.

In September, 1938, in investigating the defective vision and the appearance of multiple scotomas in a factory employee, our only clue to the etiology was that the girl was positive to both *Br. abortus* and *Brucella melitensis*. Subsequent study showed that these peculiar multiple scotomas were not really multiple at all but that a more careful technic showed them to lie in the course of a curved path through the visual field and that these curves corresponded more or less to the retinal tree. In other words, it was possible to outline blind areas between these isolated spots and join them all to make a sinuous scotoma.

We set out then, with the exceptionally efficient aid and cooperation of a nurse keenly interested in ophthalmology, to make field studies of many employees whose symptoms did not fit into regular orthodox pigeonholes and also to take fields on employees whose visual symptoms could not be explained on the usual diagnoses and hypotheses. Both types of employees were then checked by skin and agglutination tests with *Br. abortus*.

As a result of these studies we feel that there is a relationship between undulant fever and the eye, that this relationship shows itself chiefly by a marked widening of the normal angioscotoma, that it may show itself by a central scotoma that interferes with vision, and that at least 1 case of uveitis and 1 case of conjunctivitis were apparently due to undulant fever.

It may be of importance here to state what we mean by "widening of the normal angioscotoma," and to do this we will have to condense freely from *Clinical Scotometry* by Evans.

The retinal arteries and veins as they come out of, and return into, the cup of the optic nerve form a picture known as the retinal tree. You can see that picture in your own eye silhouetted in space, if you hold up the light of an electric ophthalmoscope against the globe through the closed lid.

By using small enough targets and great care in fixation and by having a cooperative patient and a painstaking patient field taker,

should be the last to be carried away by hysteria. Individuals of this type can be of inestimable service as listening posts and by reporting immediately to the FBI any facts indicating possible infractions of our national defense statutes. Vigilante action is repugnant to our sense of justice and fair play. The citizen should not gossip, evaluate, or investigate but should report the facts at once

and clear his mind of the matter. The three FBI offices in New York State are open twenty-four hours a day and are located at 707 National Savings Bank Building, Albany, 400 United States Court House, Buffalo, and 607 United States Court House, Foley Square, New York City. The FBI is your organization. Appropriate action will be taken on all information furnished.

"SOCIALISM FOR BEGINNERS"

"Some are large,
Some are small,
Some are short,
Some are tall,
Some are thin,
Some are fat,
We must change
All of that!"¹

FOR MORE ADVANCED STUDENTS

Some are healthy,
Some are ill,
Some need surgery,
Some a pill,
Some are wealthy
Many fat,
We are changing
All of that

FOR POSTGRADUATE SOCIALISTS

Some were large,
More were ill,
A few had something,
In the till.
Some were placid,
Others fat,
Now there's nothing
More like that

POSTSCRIPT

Peace, contentment?
Down the spout!
All our lives turned
Inside out
Taxes? Plenty!
Prices rising,
Results so far
Are quite surprising!

—L D R

"AMERICAN DOCTORS FOR BRITAIN"

"Sir I am much interested in this subject now before the profession from an experience during the last war, when I occupied the position of chairman of the Recruiting Medical Boards for Cumberland at Carlisle, where thousands of men were examined. I have no hesitation in expressing the view that the present arrangements are superior to 1914-1918, and if they were effected to the full there should be little need for the emergency call for 1,000 American doctors at this time. But it is not so, for although a large number of available British doctors have already registered in the ordinary course comparatively few have been posted to date.

"During the recruiting period of the last war applications for posts on Medical Boards were received from qualified men hailing from several other countries, and a number were accepted, but temperamental variation and habitude barred the way to good cooperation and harmony, acute friction resulted with consequent resignation, with the result that the whole clinical system extant suffered acutely. I would like to be informed why so many English doctors, quite dispensable for service, under the age of 30 have not been called up and are enjoying seclusion in their own practices. I am satisfied that if the committees in authority for absorbing all the available medical man-power were exhaustively conducted, there would be little need for the emergency call to the Western Hemisphere, initiating an anomalous position. During the last war medical man-power was reduced to an absolute minimum, and only a fraction of the medical community was left to carry on medical practices—in fact, a dangerous position was reached. At the present time, however, the general health of the nation is good, and the vital intelligence of the people is such that this should be maintained for the remainder of the war—I am, etc."

C W GRAHAM, J P

*Ex-President of the Border Counties Branch
B.M.A.*

—Brit M J, 834 (May 31) 1941

Silloth, May 13

were as follows. This patient was an unmarried, attractive girl of 21. She was healthy in appearance except that she was underweight. She gave a history of frequent headaches, considerable postnasal discharge, and some blurring of vision. Because of this blurring she had not been doing her work properly.

On September 16, 1938, when her history was taken and a physical examination was made (Fig 1), she said she smoked about ten cigarettes a day and drank an occasional glass of beer or a cocktail. She had no domestic, financial, or love worries to distract her mind from her work, and as far as she knew she was in good health.

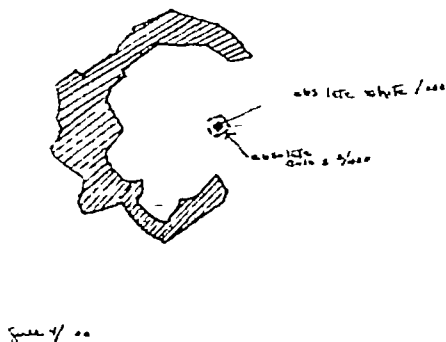


FIG 1 Tangent field study of Case 1 made on September 16, 1938. Left eye vision 6/7—corrected to 6/7+ by -0.50 cyl. X 180. Eye grounds—normal. Form, 4/1,000, colors, 8/1,000, ring scotoma, 4/1,000, central scotoma, 2/1,000, illumination, 6.5 foot candles.

Her pulse was 70. Her blood pressure was 120/70. Her temperature chart, kept for two weeks, showed a fluctuation between 96 and 99 F, with a high point of 101.2 F and a low of 95.4 F, and had the undulations characteristic of brucellosis.

An examination of her head and neck, sinuses, glands, heart, and chest showed all to be normal.

Her blood showed a hemoglobin of 95 percent, a red cell count of 4,850,000, and a white cell count of 6,200. Her blood Wassermann was negative and a glucose tolerance test eliminated diabetes. There was agglutination with Br abortus (1-1,280) and with Br melitensis (1-640). Her reflexes were hypersensitive, which seemed to exclude multiple sclerosis.

Could undulant fever explain her headaches and visual disturbances? She came to the plant on April 1, 1936. Her vision then was

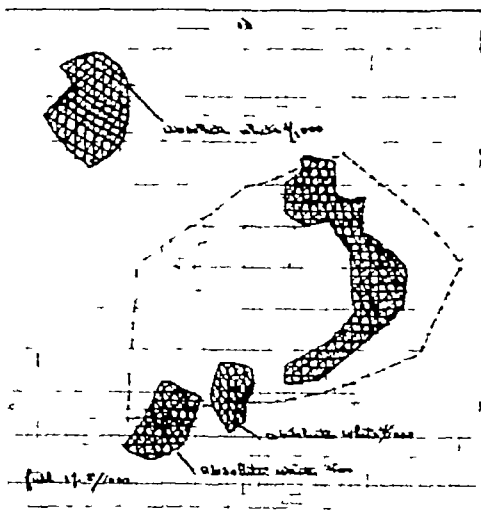


FIG 2 Tangent screen study of Case 2. Vision 6/6. All fields 17.5/1,000. No fundus pathology.

6/6, her temperature, pulse, and respirations were, respectively 99 F, 80, and 20. She said she had been hot and feverish at intervals during the last six months.

Her progress under sulfanilamide treatment has not been startling. Her headaches are less and her vision became 6/6— with her glasses. On October 30, 1939, her angioscotomas were still definitely enlarged.

Case 2—V C was referred to the Eye Clinic because she complained of blurring vision and with it vertical headache, pain in the knees, and malaise.

Her eyes showed 6/6 vision in each eye without correction. There was no need for glasses, no fundus pathology, no nystagmus, and no diplopia. Her fields showed scotomas of the type that we have come to know as widening of the normal angioscotomas, and a typical one, that of the right eye on October 31, 1938, is here charted (Fig 2).

The curved pericentral scotoma is a widening of the normal angioscotoma. The scotomatous islands are probably errors in field-taking technique. This girl is temperamental to a degree that makes it difficult for the technician to take a proper field. These islands could probably be joined by curved lines to form a typical angioscotoma.

Looking back on this girl's health record with the company, we find that on admission as an employee on January 26, 1933, she had an oral temperature of 99 F and her vision in each eye was 6/4-1. She lives on a farm with her mother and their milk comes from one cow. This cow is positive to undulant fever. Serologic tests on the girl have given various reactions, some negative and some mild and not con-

it is possible to outline the shadow cast by these vessels on the eye fields just as one outlines the scotoma or blind spot formed by the optic nerve. Evans dislikes the term "shadow cast by these vessels" because the scotoma is greater than the size of the vessel and would seem to be induced by a lymph stasis around the vessel. These projections of the retinal tree on a field chart are known as "angioscotomas."

Normally, the largest trunks form a scotoma of 1 degree to $1\frac{1}{2}$ degrees, and 1 degree at 1 meter or 1,000 millimeters casts a shadow or scotoma of 17.4 mm in width. We take then a scotoma of 17.4 mm at 1 meter and in the path of the projected retinal tree to be part of a normal angioscotoma. Anything greater than that, or rather greater than $1\frac{1}{2}$ degrees or 26.3 mm., is a variation from normal or a "widening of the normal angioscotoma."

Angioscotomas are subject to change without notice from change of posture, compression, light, menstruation, nasal cavity manipulation, cervical sympathetics stimulation, and other causes. Their chief point of distinction and identification is that they follow the course of the retinal tree.

In the routine work of our Eye Clinic and particularly for this special work in marking out angioscotomas, we tried out the ordinary perimeter, the Peter's small hand scotometer, the Bausch and Lomb stereocampimeter, and the instrument of the American Optical Company which uses mirrors instead of prisms to produce stereoscopic effect. It has been our experience that defects that fail to show with other instruments are revealed by the large Bausch and Lomb tangent screen with its special overhead projected illumination. We have come to the conclusion that the tangent screen best serves our purpose, and this screen is being used almost exclusively.

We have studied some 111 cases with symptoms more or less suggestive of undulant fever. In order to bring this paper somewhere within readable length, we have selected for presentation only 6 cases from the 111 studied. We show, for the same reason, only the field of one eye where both eyes showed similar field defects. Most of our cases have had repeated field checks over many weeks and months, and 2 have had over a year of study. While we have their charts on file, we have not loaded up this thesis with their reproduction.

So, too, we have presented in detail only our first case (M. T.) With the others we

have presented the case history in as brief a form as possible. But all cases have had complete physical examinations.

We now present our case studies and statistical findings.

Case Reports

Case 1—On September 12, 1938, M. T., young woman, was sent to our Eye Clinic because she had been missing defects in a manufactured product which other inspectors could detect. Her vision was slightly below normal with or without glasses, and her error of refraction was so small that, at her age, glasses were not considered necessary. There was a slight horizontal nystagmus, but the interior of her eyes showed a normal healthy fundus and no explanation for her blurring vision.

Having a retrobulbar neuritis in our minds, a result of multiple sclerosis or some toxic disturbance, we had field studies taken on a Bausch and Lomb tangent screen. The right eye showed a small absolute scotoma (central) for white and blue, and the left eye showed also an absolute central scotoma for white and colors with a large winding scotoma in the midtemporal field.

Since the normal projected shadow cast by a retinal vessel (temporary and disputed definition for an angioscotoma) is only $1\frac{1}{2}$ degrees wide and this curved scotoma measures considerably more than that, it seemed logical for us to regard this ring scotoma not as an angioscotoma but as something more sinister. However, a perusal of Evan's interesting book on angioscotometry, *Clinical Scotometry*, and a personal communication from Dr. John Evans lead us to believe that what we had here was a lymph extension or stasis from the retinal vessel or that we had charted two retinal vessels as one.

A medical check-up proved definitely that she did not have multiple sclerosis, that she was and apparently had been running a low-grade fever for some time, and that she was positive (agglutination test) to both the Br. abortus and Br. melitensis.

Looking into her history we found that she lived in a nearby village with a large Italian population and that goats, while not so abundant as on the Island of Malta, were very much in evidence. However, she denies that she has ever drunk goat's milk, and the family milk supply comes from various dairies. She is the only member of the family affected. However, she visits an aunt at a village some 60 miles away where the milk supply is raw milk, but it is not known whether the cows have undulant fever.

Subsequent field studies showed variations in the size and shape of these angioscotomas, but on the last examination, February 13, 1939, the ring scotoma was still present, the central scotoma had disappeared, and her vision with correction was 6/6—

The clinical history and physical examination

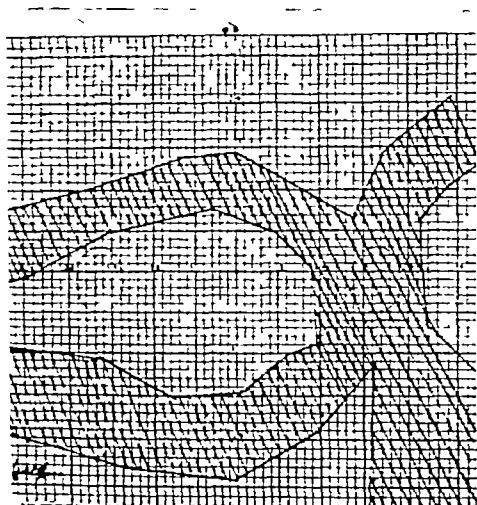


Fig 6 Tangent field study of Case 5 made on December 23, 1938 Right eye vision 6/7—, not improved by any lens Angioscotoma charted with 4/1,000

On April 1, 1939, she was admitted to the Genesee Hospital with a diagnosis of undulant fever. She was given sulfanilamide with no improvement, but after intravenous typhoid in April, 1939, she showed marked progress.

A subsequent field study on April 17, 1939, one week after leaving hospital, showed a marked reduction in size of angioscotomas (Fig 5).

On November 11, 1939, the angioscotomas were still normal in spite of the fact that she had had a cold. This time she had no malaise, aches, or pains.

Her only history of possible contact was on one occasion when she drank raw milk.

Case 5—G. S., a girl aged 21, came to the Medical Department on December 19, 1938, complaining of headache. Her previous medical history was of frequent colds, sore throat, and abdominal discomfort. She was sent to the Eye Clinic on December 21, 1938, and an examination showed no eye pathology but a strongly suspicious angioscotomatous enlargement (Fig 6).

On March 8, 1939, she was given Br. melitensis vaccine and developed a markedly positive reaction. On March 23, 1939, she was positive on agglutination to 1-80 Br. abortus and to 1-80 Br. melitensis.

This girl was given 160 Gm. of sulfanilamide over a period of four days and showed no improvement.

On July 20 tests were positive with Br. abortus (1-40) and Br. melitensis (1-20).

Case 6—E. F. was a woman, aged 38. This case is particularly interesting in that she came to the Eye Clinic on July 3, 1939, with a blood-shot eye of four days' duration. An examina-

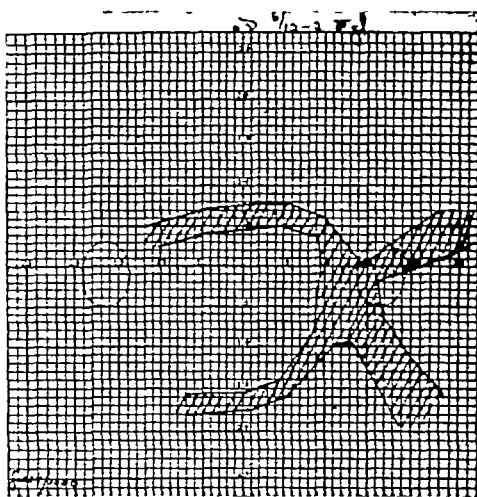


Fig 7 Tangent screen field of Case 6 made on November 22, 1939 Right eye

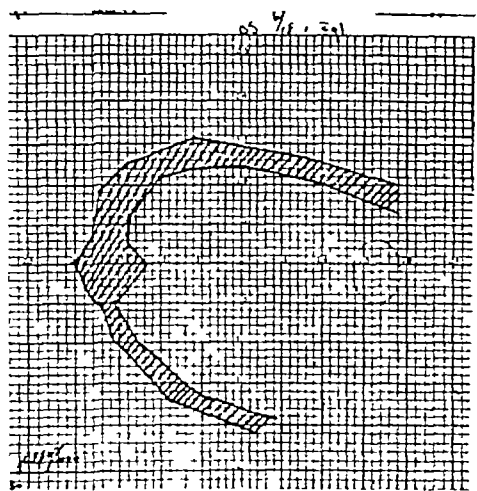


Fig 8 Tangent field study of Case 6 made on November 22, 1939 Left eye

tion showed a vision of 6/48 without glasses and 6/18 with glasses in the right eye, with a steamy cornea. The pupil was contracted and active, and the iris was dilated evenly and without adhesions. The details of the fundus could be indistinctly seen because of the cloudy media. A diagnosis of uveitis was made.

A hunt for a focus of infection in tonsils (removed), teeth, sinuses, and the like failed to show any reason for the uveitis. A Wassermann test was negative.

Two days later all eye symptoms had increased, and there were marked deposits on Descemet's membrane.

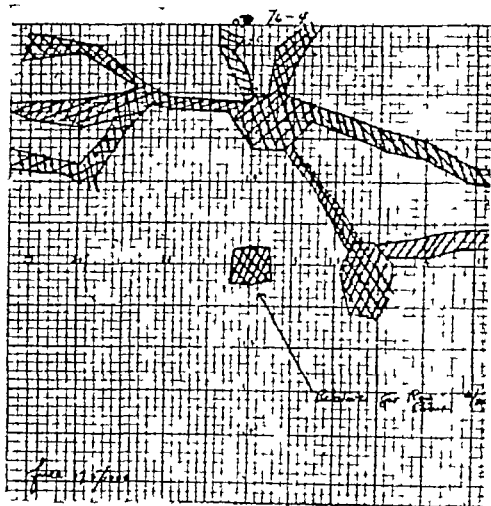


FIG 3 Tangent screen field of Case 3 made on December 21, 1938 Right eye vision 6/6-4 Angioscotoma plotted with 4/1,000, central scotoma, with 2/200

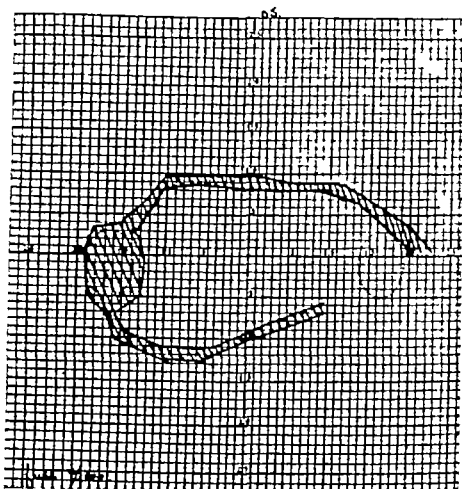


FIG 5 Tangent screen study of Case 4 made on April 7, 1939 Left eye

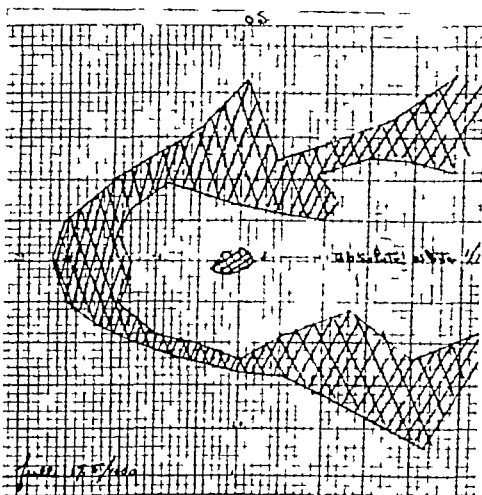


FIG 4 Tangent screen study of Case 4 made on January 12, 1939 Left eye vision 6/12 corrected to 6/7- Angioscotoma charted with 4/1,000 target, central scotoma, with 1/1,000

vincing, but eventually she was proved positive to undulant fever by a skin test

A temperature chart kept for one week showed variations between 97.6 and 99.2 F Her chief complaints, in addition to those mentioned, were fatigue, insomnia, and sore throat

Small absolute scotomas (paracentral) developed in the right eye in March, 1939, and in the left eye in September, 1939 It is difficult to explain why, with absolute paracentral scotoma, this girl had no loss of vision, unless it was that

the absolute center of the macula remained unaffected

She has been treated with sulfanilamide and has shown periods of improvement and periods of retrogression At time of writing she is improved, but her progress under treatment has not been convincing

Case 3—W W, complained of fatigue, malaise, and some headache He had a postnasal discharge but otherwise an essentially negative physical examination

On October 17, 1938, his vision in each eye was 6/6-3, he had normal fundi, but his field studies showed certain bizarre scotomas that rightly or wrongly we had come to associate with undulant fever (Fig 3) To our disappointment an agglutination test proved negative

We were naturally suspicious of undulant fever because this man kept goats and occasionally drank their milk He left the plant because he felt too sick to work On his return to the factory a skin test was positive to both Br abortus and Br melitensis

Case 4—R. S was a young woman with joint pains and joint swellings Her case had been diagnosed by her family physician as rheumatoid arthritis She had had a tonsillectomy in April, 1938, to remove a possible focus of infection. She complained of her back bothering her and of frequent colds

On January 12, 1939, she was sent to the Eye Clinic Her right eye had vision of 6/9 improved to 6/6- by her correction There was no fundus pathology The left eye similarly had vision of 6/12 corrected to 6/7- (Fig 4)

Her fields of vision showed the scotomas of angioscotomatous type, and a skin test for undulant fever was mildly positive

BLOOD PRESSURE STUDIES IN THE AGED

ISIDORE MILLER, M D, New York City

"GERIATRICS has been a neglected field of medicine. At present the mortality at advanced ages is considerably more than necessary, owing to neglect of special study in the anatomy and physiology of senescence." Geriatrics will assume a greater importance with the years as the changes in the age distribution of the population become more marked. At present 260 of every 1,000 people in the United States are 40 years of age and over. It is estimated that by 1960, 36 per cent of the population will be between 40 and 65 years of age. In 1930 there were 6,500,000 people in this country 65 years of age and over, by 1980, it is estimated there will be 22,000,000.*

The problem of what constitutes the limits of normal blood pressure is of interest to all who examine patients. Most studies of the blood pressure have reported figures for the younger adult groups. Only recently has the factor of old age come into prominence.

Life insurance underwriters have prepared tables for normal blood pressure averages of white male groups.¹ These tables show that the blood pressure rises from a systolic of 120 and a diastolic of 79 at the age of 20 to a systolic of 138 and a diastolic of 89 at the age of 65. With advancing years the average normal systolic pressure increases more rapidly than the diastolic pressure but much more slowly than the age. For a general rule, permitting variations of 10 mm. in the systolic pressure and 5 mm. in the diastolic, the normal range is 110 to 148 systolic and 70 to 95 diastolic, approaching the upper limits in the older age groups.

Alvarez,² in his examinations of the freshmen students at the University of California (6,000 men and 8,934 women), found that the blood pressure did not increase with age, in men the average pressure dropped from the age of 17 to 21, then remained the same to 30, in women there was a drop from the age of 17 to 25, then it rose rapidly after 25 and extremely rapidly after 40. He found that 45 per cent of the men and 12 per cent of the women had systolic pressures over 130, 22 per cent of the men and 2 per cent of the women had systolic pressures over 140.

Diehl and Sutherland³ studied the blood

pressures of 5,122 men entering the University of Minnesota in 1922, 1923, and 1924. In 1922, 16.2 per cent had a systolic pressure of 140 and over. In 1923 and 1924 the men were given a rest period before examination and only 9 per cent had a pressure of 140 and over. They felt that nervousness and excitement were important factors in producing transient hypertension in young people.

Alvarez and Stanley⁶ studied the blood pressures of 6,000 prisoners and 400 guards. They found that the percentage of men with pressures over 140 in the ages between 20 and 40 remained almost constant, and they suggested that those with hypertension at 40 had had it also at 20. Five per cent of white prisoners of all ages between 15 and 39 had hypertension. Of 58 prisoners between 60 and 84 years, 37 or 64 per cent had pressures under 139 mm. They stated that a pressure of 115 mm. was just as normal and a pressure of 140 was just as abnormal in an old man as in a young man.

Bowes⁷ studied the blood pressures of 50 men and 100 women with ages ranging from 65 to 94 years. The systolic pressure of the men rose from 145 in the 60- to 65-year group to 163 in the 80- to 84-year group. The women showed a similar rise from 154 to 183. Both men and women showed a marked fall in systolic pressure in the 90- to 94-year group. The diastolic pressures varied from 81 to 91 in the men and from 80 to 90 in the women, the lower figures were present in the 90- to 94-year group. The pulse pressure varied in the men from 63 to 80 and in the women from 53 to 98. The pulse pressure, too, showed a drop in the 90- to 94-year group. Of the 150 patients, 22 had systolic pressures over 200, 28 had diastolic pressures over 100, and 30 had pulse pressures over 100.

Lewis⁸ studied the blood pressures of 100 men, 20 in each decade from 40 to 89 years, he included 1 man of 90 and 1 of 101. These studies were made in the basal state. The systolic pressure rose continually after 40, the greatest rise was seen after 65. The systolic pressure was 116 at 40 to 44 years, 124 at 60 to 64 years, 158 at 85 to 89 years. The 2 men over 90 had lower pressures. The average diastolic pressures varied slightly in succeeding decades. The pulse pressures were greater at the higher age groups since the

*From the New York City Farm Colony, Staten Island, New York.

On July 6, 1939, she was given Br abortus, and on July 7 both the agglutination test and the skin test were reported negative. On July 12 a tuberculin test was negative.

On July 17 it was noted that the erythema around the undulant skin test remained at 1 cm. diameter after twelve days. This had been done with Br abortus 1-80 dilution and Br melitensis (1-40).

On November 22, 1939, the eye had practically recovered from the attack of uveitis and the tangent fields were taken in both eyes, with enlargement of the angioscotomas as noted on the charts (Figs 7 and 8). She was given neoprontosil.

Here we have a girl with a uveitis whose origin we were unable to discover, unless it was due to undulant fever. In proof of this theory we have positive skin and agglutination tests and, what is significant to us, marked widening of the normal angioscotomas.

Summary and Conclusions

1 Since September 16, 1938, we have studied some 111 cases by means of tangent screen fields. Some of these were routine eye examinations with visual abnormalities not explained by intraocular or extraocular pathology, error of refraction, or central nervous system disease. Some were examined because of physical complaints. Some were done as part of an eye study of the employees whose work brings them in contact with various chemicals.

2 Of these 111 cases, 92 or 81.41 per cent showed widening of the normal shadows of the retinal tree or angioscotomas.

3 Of those that showed increased angioscotomas, 75 or 81.5 per cent showed positive

skin reactions indicative of undulant fever.

4. Of the 19 that showed normal angioscotomas, 3 showed positive skin tests or 15.7 per cent.

5 Field studies were also done on a small group of patients suffering from various afflictions, from sinusitis to appendicitis, to determine whether an enlargement of the angioscotomas was merely due to a congestion of the vessels of the head such as might follow or accompany any febrile reaction. Our results would not seem to substantiate this theory.

6 Stated conservatively, we believe that there is a definite relationship between angioscotomas and undulant fever. We believe that this relationship usually takes the form of an enlargement of the normal angioscotoma and occasionally is accompanied by small central scotoma and disturbances in vision.

7 Whether these enlargements of the normal angioscotomas are definitely diagnostic of undulant fever is doubtful or improbable. They may turn out to have the same relative value as an increase in the white cell count in mastoiditis or appendicitis. But whether they are of diagnostic value or not, they are interesting phenomena accompanying undulant fever and will bear further study.*

* **AUTHORS' NOTE.** Since the preparation of this paper we have changed our plan of attack in treating suspected brucellosis. We now use brucellosis vaccine in preference to sulfanilamide. While the results on the whole have been better and while we have had some startling cures, some of our cures have had relapses and slipped back to the original blurring vision for which they sought relief. But this, after all, is characteristic of brucellosis behavior.

CONNECTICUT STATE MEDICAL SOCIETY TO HOLD SEVENTEENTH CLINICAL CONGRESS

The Connecticut State Medical Society will hold its seventeenth annual Clinical Congress in the Sterling Law Buildings of Yale University at New Haven, on Tuesday, Wednesday, and Thursday, September 16, 17, and 18.

Among the guest speakers from outside of Connecticut will be Drs. Sara Jordan, Paul A. Younge, Oscar F. Cox, James L. Poppen, Gilbert E. Haggert, Samuel A. Levine, Frank D. Lathrop, Grantley W. Taylor, and Frank H. Lahey, of Boston; Emil Novak, of Baltimore; Robert H. Kennedy, Ernst P. Boas, David C. Bull, Burrill B. Crohn, Thomas Francis, Jr., and Jerome T. Webster, of New York City; E. Jefferson Browder and Matthew Walzer, of Brooklyn; Y. D. Koskoff, of Pittsburgh; George St. J. Perrott, of Bethesda, Maryland; and Irvine H. Page, of Indianapolis. In addition to these speakers, many Connecticut physicians will present papers.

Tuesday morning's session will be devoted to the main to gynecologic subjects, Tuesday afternoon's, to the effects of trauma, and Wednesday morning's, to cardiovascular disease. The remaining sessions will present a varied and well-rounded program of interest to all physicians.

Members of the Congress may enroll in a special course in Traumatic Surgery to be given under the direction of Dr. Samuel C. Harvey of the Yale School of Medicine. This course will begin at the time of the Congress and continue at weekly intervals until completed.

Any physician may register for the Congress. The registration fee for the Congress is \$2.00 and for the special course in Traumatic Surgery is \$1.00 additional. Detailed information and registration cards may be obtained by writing to the Connecticut Clinical Congress, 258 Church Street, New Haven, Connecticut.

TABLE 2.—RELATION OF AGE TO BLOOD PRESSURE

Age Groups	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	All Ages	Percent- age of Total No.
Men											
No of patients	40	86	159	270	136	53	67	12	0	553	100
Systolic press. mm											
\bar{c} under 120	15	10	20	15	6	4	4	0		101	12
\bar{c} 120-140	53	48	31	32	31	31	37	33		293	34
\bar{c} 140-160	17	24	21	18	31	29	22	25		193	23
\bar{c} 160-180	10	8	13	22	16	17	7	25		134	16
\bar{c} 180-200	5	6	10	10	12	13	19	0		89	10
\bar{c} 200 and over	0	4	6	4	5	6	10	17		43	5
Diastolic press. mm											
\bar{c} under 90	77	72	72	77	77	73	70	50		597	75
\bar{c} 90-110	20	26	21	17	21	22	15	25		160	20
\bar{c} 110 and over	3	2	7	6	2	5	15	25		41	5
Pulse press. mm											
\bar{c} under 60	78	62	53	39	29	24	27	42		356	42
\bar{c} 60-90	18	31	37	47	50	49	49	25		365	43
\bar{c} 90 and over	5	7	9	14	21	27	24	33		132	15
Women											
No of patients	8	9	20	27	19	21	9	9	6	123	100
Systolic press. mm											
\bar{c} under 120	0	11	5	0	5	0	0	11	0	4	3
\bar{c} 120-140	38	33	20	15	21	19	11	33	33	28	22
\bar{c} 140-160	25	22	10	22	32	19	11	33	17	27	21
\bar{c} 160-180	25	11	30	15	16	29	11	0	0	23	18
\bar{c} 180-200	0	0	15	22	11	19	13	11	33	21	16
\bar{c} 200 and over	13	22	20	26	16	14	33	11	17	25	20
Diastolic press. mm.											
\bar{c} under 90	38	56	65	44	42	52	44	67	67	68	51
\bar{c} 90-110	50	33	25	37	42	29	22	22	33	42	33
\bar{c} 110 and over	13	11	10	19	16	19	33	11	0	20	16
Pulse press. mm											
\bar{c} under 60	63	33	25	19	26	24	11	33	17	33	26
\bar{c} 60-90	25	44	30	37	47	48	33	56	17	50	39
\bar{c} 90 and over	13	22	45	44	26	29	56	11	66	45	35

140 and 20 per cent had a pressure of 200 and over. Fifty-one per cent had a diastolic pressure under 90 and 16 per cent had a pressure of 110 and over. Twenty-six per cent had a pulse pressure under 60 and 35 per cent had a pressure of 90 and over.

This study has included the effects of age and sex on the blood pressure. There are other factors that play a part, but these would act equally on the 65-year-old and the 100-year-old person. The effect of increased weight on the blood pressure was not studied. The patients, as a group, were of normal or slightly below normal weight in relation to their height.

Sex does play an important role in the picture. In the older age groups the women had higher average pressures than the men (except the 85- to 89-year group). Alvarez and Zimmerman¹¹ thought that these women had a heredity tendency to hypertension which became manifest only with the loss of ovarian secretion. Up to 40 years, Symonds³ found that men had a systolic pressure 1 to 2 mm. more than women, after the age of 40 the pressure of women rose much above that of men.

Fishberg¹² defined essential hypertension as a constitutional, familial, and hereditary disease (probably diseases) which has been aptly termed constitutional hypertension.

As accessory factors he included emotional and psychic strains, overeating, and obesity. A family history was unknown or indefinite in most of these patients. Worry, fear, grief, and mental work play little part now in their lives. The aging process itself usually brings a peace of mind and mental relaxation.

Fineberg¹³ found that patients with elevated systolic pressure and a relatively low diastolic pressure formed a definite group characterized clinically by their relatively advanced age. These cases ran a benign and prolonged course. He included in this group cases with systolic pressures over 150 mm. and diastolic pressures below 90 mm. The high systolic pressure was caused by vasoconstriction of the peripheral vascular bed, the low diastolic pressure was due to atherosclerosis of the aorta and larger vessels. Wiggers¹⁴ expressed the opinion that, in hypertension, constriction affected the entire arterial tree. In the smaller vessels this produced increased peripheral resistance, in the larger vessels the capacity and extensibility were reduced. Diminished elasticity of the aorta and the larger arterial branches in atherosclerosis plays an important part in producing an increase in the pulse pressure. Table 1 shows that systolic hypertension is the common type in the older age groups. Among the men, from the age of 75 years and

TABLE 1—EFFECT OF AGE ON THE AVERAGE BLOOD PRESSURE

Years	Systolic pressure	Men Diastolic pressure	Pulse pressure	Systolic pressure	Women Diastolic pressure	Pulse pressure
50-54	132	86	46	155	94	61
55-59	137	87	50	154	87	67
60-64	142	86	56	156	84	72
65-69	146	84	62	174	93	81
70-74	148	84	64	161	88	73
75-79	154	84	70	165	90	75
80-84	154	85	69	176	94	82
85-89	157	86	71	145	83	62
90-94				158	75	83

systolic pressures rose more than the diastolic pressures. He stated that the general trend of the systolic pressure was a rise and was directly related to age.

Willius,⁹ in a study of the blood pressure in 700 persons 75 years of age and over, found a systolic pressure over 140 in 74 per cent, a diastolic pressure over 90 in 40 per cent, and a pulse pressure over 60 in 69 per cent. His study was conducted on people who had come to the Mayo Clinic because of the presence of some pathology. In a further study of the cardiovascular system in old age, Willius and Smith¹⁰ reported their results in 381 patients, 70 years and over. A systolic pressure over 140 was present in 64 per cent, a diastolic pressure over 90 in 37 per cent, a pulse pressure over 60 in 60 per cent. These figures were lower than in the previous study because a younger age group (70 to 74 years) was included. Willius stated that his figures showed a tendency for hypertension to occur in old age.

The blood pressure studies at the New York City Farm Colony were done on 853 men and 128 women. The readings were taken during routine physical examinations that took place daily between 9:00 and 12:00 A.M. The pressures were taken with a mercury manometer by the auscultatory method, with the patients in a sitting position. The diastolic reading was taken at the end of the loudest sound and not at the total disappearance of sound. Each patient had a physical examination every six months. They were accustomed to the examination and to the taking of the blood pressure, fear and excitement due to possible adverse physical findings were present in only a few of the patients.

Concerning the nationality of these patients, about 45 per cent were natives of the United States, 20 per cent, of Ireland, 13 per cent, of Germany, 5 per cent, of Italy, with scattered small percentages from the rest of Europe, Japan, Canada, Cuba, and the Virgin Islands. These men were predominantly nonskilled workers in their youth, in this institution,

if they were physically able, they were asked to do two hours of light work daily. They lead a simple life, have few worries, have their meals at regular hours, and can rest in their beds any time they wish. Many of these men have no families or have lost contact with their families. These patients do not have the emotional upsets concerned with "making a living." The storms and strifes of life leave most of them unperturbed. Alvarez and Stanley⁸ in their study of prisoners and prison guards found a lower blood pressure in the prisoners. They believed that the "basal" state of the prisoners (no responsibilities) was the logical explanation.

Table 1 shows the effect of age upon the average blood pressure. In men the systolic pressure rose from 132 in the 50- to 54-year group to 157 in the 85- to 89-year group. The diastolic pressure varied only slightly with age (from 84 to 87 mm). The pulse pressure rose from 46 to 71. In women the systolic pressure rose from 155 in the 50- to 54-year group to 176 in the 80- to 84-year group, this was followed by a fall. The diastolic pressure varied only slightly (84 to 94 mm) from 54 to 84 years, after 85 years there was a fall. The pulse pressure rose from 61 to 82. With increasing age a fairly constant rise in the systolic and pulse pressures occurred in the men. In women the results were not so clear cut but, if the 65- to 69-year group is excluded, the tendency for the rise in systolic and pulse pressures is present up to 84 years. Systolic, diastolic, and pulse pressures were higher in the women than in the men at all age groups except the 85- to 89-year group.

Table 2 shows the variations in blood pressure with age. Forty-six per cent of the men had a systolic pressure under 140 and 5 per cent had a pressure of 200 and over. Seventy-five per cent had a diastolic pressure under 90 and 5 per cent had a pressure of 110 and over. Forty-two per cent had a pulse pressure under 60 and 15 per cent had a pressure of 90 and over. Twenty-five per cent of the women had a systolic pressure under

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Table 2 shows the variations in blood pressure with age. Forty-six per cent of the men had a systolic pressure under 140 and 5 per cent had a pressure of 200 and over. Seventy-five per cent had a diastolic pressure under 90 and 5 per cent had a pressure of 110 and over. Forty-two per cent had a pulse pressure under 60 and 15 per cent had a pressure of 90 and over. Twenty-five per cent of the women had a systolic pressure under

determination Of these, 35 (7 per cent) had a blood glucose of over 120 mg Fourteen (2.8 per cent) had blood glucose of 150 mg and over The average blood pressure was increased in diabetes (160 systolic pressure as compared to 147 systolic pressure in the non-diabetic patients) Of the 35 patients with a blood glucose of over 120 mg, 5 (14 per cent) had a blood pressure of 200 mm or over

To determine the effects of syphilis on the blood pressure, a study was made of the blood pressures of 500 patients who had had Wassermann tests Of these, 40 (8 per cent) had a 3 or 4 plus Wassermann reaction The average systolic pressure in this group was 148.7 mm This compared closely to the average systolic pressure of 147 mm in the negative Wassermann group

Conclusions

1 With changes in the age distribution of population, geriatrics will assume greater importance Further studies in physiologic old age are needed to give us standards that can be used for comparison

2 In men the average systolic pressure rose from 132 mm at 50 to 54 years of age to 157 mm at 85 to 89 years of age The diastolic pressure varied only slightly with increasing age The pulse pressure rose from 46 mm to 71 mm

3 In women the systolic pressure rose from 155 at 50 to 54 years of age to 176 at 80 to 84 years of age The diastolic pressure varied only slightly The pulse pressure rose from 61 to 82

4 Systolic, diastolic, and pulse pressures were higher in the women than in the men at all age groups except in the 85- to 89-year group

5 Systolic hypertension with a relatively low diastolic pressure was a common finding in the older age groups

6 A predisposition of particular blood groups to hypertension has not been demonstrated

7 Hypertension, per se, had no effect on the erythrocyte count and hemoglobin

8 The vital capacity was normal for all blood pressure groups except for the group with a systolic pressure of 200 and over

9 Diabetes mellitus was associated with an increase in systolic blood pressure

10 A positive Wassermann reaction had no effect on the blood pressure

333 East 80th Street

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ODD KIND OF PASTIML

A new use for the stethoscope is reported by the regular London, England, correspondent of the *Journal of the American Medical Association* in the March 15 issue He says

"In gratitude for his work in removing delayed action bombs which fell in the east end of London, Capt Robert Davies, who is in command of the bomb disposal squad, has been presented with a stethoscope by the resident staff of one of the hospitals He has frequently borrowed a stethoscope from the hospital in order to listen to the ticking of delayed action bombs before removing them"

HE HURT HIS FINGER

Vladimir Horowitz, pianist, whose concerts occasionally have been broadcast, has been forced to cancel all engagements for the remainder of the year His three consulting physicians released the following statement

"We have under our care Mr Vladimir Horowitz who is convalescing from a traumatic tenosynovitis of the flexor digitorum sublimis and profundus muscle at the metacarpophalangeal joint"

Horowitz has an injured finger

—Radio Column, Pittsburgh Post-Gazette, quoted in the Illinois Medical Journal

TABLE 3—PERCENTAGE BLOOD GROUP DISTRIBUTION IN GENERAL POPULATION AND IN OLD AGE GROUPS

Blood Groups	General Population ¹⁷	Present Study 65 Yrs and Over	W W Graves ¹⁸ 60 Yrs and Over
AB	4	4	3.4
A	41	30	40.6
B	10	9	9.6
O	45	48	46.4
Total no. of people in study		500	500

TABLE 4—BLOOD GROUP DISTRIBUTION IN RELATION TO BLOOD PRESSURE IN A GROUP 65 YEARS AND OVER

Blood Groups	AB	A	B	O
No of patients	18	196	47	239
Systolic press., mm				
% under 120	11	12	2	12
% 120-140	44	26	30	30
% 140-160	11	28	28	26
% 160-180	11	17	28	16
% 180-200	6	13	8	12
% 200 and over	17	4	4	5
Diastolic press., mm				
% over 90	28	25	21	26

up, the average systolic pressure was above 150 and the average diastolic pressure was below 90. Among the women the average systolic pressure was above 150 at all age groups (except the 85- to 89-year group), but the average diastolic pressure was slightly higher than 90 in half of the age groups.

Robinson and Brucer¹⁵ differentiate average and normal blood pressure. They found that the average systolic pressure rose with age but that normal blood pressure did not. To obtain their normal readings they excluded those with a systolic pressure over 140 and a diastolic pressure over 90 (13.3 per cent of their cases). Just as many old men as young men had low blood pressures. In their opinion the normal range of systolic pressure is from 90 to 120 mm., of diastolic pressure, from 60 to 80 mm. Pressures higher than these are a sign of incipient hypertension, and it is these prehypertensive and hypertensive pressures that rise with age.

In Table 2 it can be noted that if the patients with systolic pressures of 140 and over were excluded, 50 per cent of the men in the seventh decade and over 60 per cent of the men in the eighth and ninth decades would be affected. There is a decrease in the percentage of men with average systolic pressures under 140 with age (from 68 per cent in the 50- to 54-year group to 33 per cent in the 85- to 89-year group). In their older age groups, Robinson and Brucer's figures show a similar decrease with age in the percentage of men with average systolic pressures under 140

(from 75 per cent at 55- to 59-years to 38 per cent at 75- to 79-years).

To determine whether the percentage distribution of blood groups in old age differed from that present in the general population, blood group determinations were made on 500 people 65 years of age and over. The figures are shown in Table 3. In reviewing the literature, a paper on this subject by Graves¹⁸ was noted in which he reported a percentage increase of 13.9 in Group O, and 1.7 in Group A in old age as compared to his findings in college men. Levine¹⁷ stated that it was not likely that the blood group incidence varied with age since there was no increased mortality in any of the blood groups. Further studies will have to be made on the older age groups before any conclusion can be drawn.

In Table 4 the blood groups have been separated into various blood pressure levels. Groups A and O, in which 86 per cent of the patients are included, show an almost similar incidence in the percentage of hypotensive, normal, and hypertensive cases. Group AB has a larger percentage of cases with systolic pressure over 200, but only 18 cases of Group AB are present. With this one exception, the figures do not show that any blood group is predisposed to hypertension. Wiechmann and Paal¹⁸ found a relative predominance of Groups III and IV in hypertension.

Miller¹⁹ has reported the effects of variations in blood pressure on the hemoglobin and erythrocytes in old age. The patients were divided into four groups according to their blood pressure. The 120- to 140-mm group had the highest red blood cell count (4,500,000), and the hypotensive group had the lowest (4,370,000). The 140- to 160-mm group had the highest hemoglobin average (14.4 Gm.), while the 160-mm and over group had the lowest (14.2 Gm.). The differences in the red blood cell count and in the amount of hemoglobin in the various groups were slight.

In a study of vital capacity in old age²⁰ the effect of variations in blood pressure were noted. The average vital capacity of the group as a whole was 2,780 cc., 70 per cent of normal. The vital capacity was within average limits for all blood pressure groups except the one with a systolic pressure of 200 and over. This group gave an average vital capacity of 2,400 cc., 60 per cent of normal.

To determine the effect of diabetes on blood pressure, a study was made of the blood pressures of 500 patients over 60 years of age who had had a morning blood glucose

It does not, however, solve the problem of the minor or trivial injury. Should antitoxin be given or withheld in this type of injury? That question is still more perplexing and unsolvable. We all know that it is not practical to give tetanus antitoxin to every child with a trivial injury. We are not called to see most of the trivial injuries, even if we were, the chief objection is the high incidence of uncomfortable serum sickness, not to mention the always present danger of immediate anaphylaxis to horse serum, precluding further injections. Besides, the whole population of children might become so sensitized to horse serum by repeated injections that when it was really urgent to give other horse serums, as in diphtheria or meningitis, it would be dangerous to do so. There is a bovine type of tetanus antitoxin available, but it is quite expensive for routine use.

Most of these objections can now be overcome by

(2) *Active Immunity with Tetanus Toxoid*—Recently, it has been shown by an increasing number of investigators that active immunization against tetanus by means of tetanus toxoid is not only possible but extremely practical.

The principle is the same as in the universally employed active immunization against diphtheria with diphtheria toxoid. It is a well-established immunologic fact that when a specific antigen (in this case toxoid) is injected specific antibodies (antitoxin, etc.) develop and, also, that after a certain interval, if the antigen is again injected, the response of developing antibodies is much accelerated in time and amount. One of the essential differences, however, between the response in diphtheria and tetanus active immunization is that in the former the antitoxic content of the blood usually remains at a sufficiently high protective level for many years, while in the latter, after a shorter period of time, the antitoxic level in the blood often falls below the protective level of 0.1 unit of antitoxin per cubic centimeter of blood. However, it rapidly reaches the protective level again after another injection of the toxoid. Another difference is that there is no simple clinical test, such as the Schick test, to determine the degree of immunity to tetanus. There are apparently no children naturally immune to tetanus toxin. Tetanus antitoxin titrations on numerous children have never revealed any antitoxin present in their blood before immunization.

Now, what does all this mean when trans-

lated into practical immunization against tetanus?

1 Alum-precipitated tetanus toxoid is given subcutaneously or intramuscularly in 0.5 or 1 cc doses, depending on the product used.

2 Two doses are given two to three months apart.

3 The antitoxic titer of the blood is usually, but not invariably, raised well above the protective level (0.1 unit of antitoxin per cubic centimeter of blood) against tetanus infection within a few months or sooner after the second dose. Even when the interval is as long as nine months between these doses extremely high titers of antitoxin are produced.

4. This high titer usually persists for three or more months after the second dose—at times up to two years—and then may fall to less than the protective level.

5 Another dose of 0.5 to 1 cc of alum-precipitated toxoid, called the "boosting" or "stimulating" dose, given at any later time after the original two doses when exposure to possible tetanus has occurred, will within three days, in all instances, raise the antitoxin content of the blood to an effective protective level again, even much higher than after the second dose. Thus, adequate protection is insured. This again may gradually fall below the protective level in three to six months, although not necessarily so. Another boosting dose at any time will again raise it sufficiently within three days. In other words, this basal immunity, which responds so readily to a secondary stimulus, is probably lifelong.

Even though the antitoxin resulting from the primary stimulation may fall to a low level after a few months, a secondary or stimulating dose produces a much more rapid, greater, and prolonged antibody response and corresponding immunity than that obtained by the two primary injections. Boosting doses may be given to those children previously actively immunized when the physician is consulted for an injury.

6 Theoretically, and this is of utmost importance, even without this artificial boosting dose the stimulus of the tetanus toxin generated in a fresh wound should act as a natural boosting dose in a person whose basal immune mechanism is set to combat tetanus by previous active immunization. This individual should show a rapid immunity response to the stimulation from the production of tetanus toxin in the wound, and so the child with the

TETANUS—ITS PREVENTION AND TREATMENT

JOSEPH K. CALVIN, M D , Chicago

BEFORE attempting to outline the modern methods of preventing and treating tetanus, allow me to say a few words about the present conception of its pathogenesis

Pathogenesis

Tetanus bacilli infecting a local wound and remaining localized at this site generate tetanus exotoxin, which is absorbed into the circulation and is distributed throughout the body by the blood stream. It becomes fixed by the anterior horn cells of the central nervous system, resulting in reflex convulsive activity (intermittent muscular spasms). It also exerts a peripheral action in the region of the motor end plates of the muscles, causing generalized persistent muscular rigidity.

Incidence

Although the disease is relatively rare considering the widespread prevalence of the bacilli, any abrasive wound, no matter how trivial, may conceivably result in the dreaded malady. It has recently been conclusively demonstrated that the tetanus bacillus is widely distributed in street dust, even in the present horseless day. In practically every case of childhood tetanus seen at the Cook County Hospital the wound is trivial, such as those resulting from a thorn or nail, a stone bruise, a small splinter, a blister, a small abrasion, laceration or crush, a slight burn, a prick of a needle, etc. Superficial healing is usually already present, and oftentimes the wound cannot be found at all. This has also been the experience of other observers. Children, especially boys, are continually receiving trivial injuries. The organism may be on the soiled skin or clothing, even if not on the puncturing body, and may be driven into the wound at the time of the puncture or laceration. Consequently, one of the most distressing points in connection with tetanus is the possibility of its appearing when least expected, and more disquieting still is the knowledge that the largest number of cases follow the most trivial injuries. There is no way of foretelling which will develop tetanus.

Prophylaxis

Tetanus can now be prevented by two methods

(1) *Passive Immunity—Tetanus Antitoxin*—As we all know, 1,500 to 5,000 units of tetanus antitoxin injected subcutaneously within a few hours after an injury will prevent the development of tetanus. Fifteen hundred units will apparently protect a child with a minor wound. If there is a considerable interval between the time of injury and the administration of antitoxin or if there is a severe injury such as a compound fracture or crushing dirty wound, doses of 5,000 to 10,000 units are indicated. In these severe injuries it is advisable to combine gas bacillus antitoxin with the tetanus antitoxin. This passive immunity lasts only about seven to fourteen days. Consequently, if the wound does not appear to be clean and healing, the injection should be repeated every ten days, provided no serum sickness is present, since then the danger arises of producing an Arthus reaction (local gangrene). The repeated injections should never be given near the site of a previous injection for the same reason. If a suspicious wound must be reopened, even after months, i.e., for the extraction of a foreign body, another prophylactic dose must be given because of the possibility of the surgical procedure's stirring up old tetanus spores.

Adequate surgical care of the wound is extremely important so that the wound will have healed by the time the passive immunity disappears. The customary surgical measures should be employed. It is especially important to extract foreign bodies if possible.

With such an adequate means of prevention we might wonder why tetanus still occurs. The prophylactic dose would commonly be administered in certain types of injury. This is correct as far as it goes. Every physician exercising ordinary diligence and skill would administer the antitoxin in obviously dangerous wounds, such as those due to gun powder (Fourth of July injuries, etc.), auto accidents in which the wound usually is contaminated with soil and manure, compound fractures, severe puncture wounds, severe or infected burns, dirty lacerations, etc. Because this is commonly done, we at the Cook County Hospital have seldom seen tetanus follow these severer types of injuries.

1. Read by invitation at the Annual Meeting of the Medical Society of the State of New York, New York City May 8, 1940

Attending physician, Sarah Morris Children's Hospital of Michael Reese Hospital

It does not, however, solve the problem of the minor or trivial injury. Should antitoxin be given or withheld in this type of injury? That question is still more perplexing and unsolvable. We all know that it is not practical to give tetanus antitoxin to every child with a trivial injury. We are not called to see most of the trivial injuries, even if we were, the chief objection is the high incidence of uncomfortable serum sickness, not to mention the always present danger of immediate anaphylaxis to horse serum, precluding further injections. Besides, the whole population of children might become so sensitized to horse serum by repeated injections that when it was really urgent to give other horse serums, as in diphtheria or meningitis, it would be dangerous to do so. There is a bovine type of tetanus antitoxin available, but it is quite expensive for routine use.

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injury too slight to consult a physician would probably also be protected

7 The use of the combined alum-precipitated toxoids of tetanus and diphtheria, given at the same time, does not interfere with the specific immunity response of either. The immunity to each disease developed by the two specific toxoids given together is no less than that developed by each specific toxoid separately. The dose is in the same volume (1 cc). Thus, we can offer the added protection against tetanus without any additional effort or injection.

8 The reactions to alum-precipitated tetanus toxoid when given alone are few and, on the whole, have been mild. There is usually some transient local tenderness. Because of the presence of potassium aluminum sulfate (alum) in the preparation, absorption is delayed. An indurated nodule persists at the site of injection for quite a long time when given subcutaneously, but it disappears within forty-eight hours when given intramuscularly. No serum sickness or hyperallergic sensitivity develops as a rule. It can be safely used in allergic individuals or those sensitive to animal serums. There is little danger in repeated injections. My co-workers and I have given about two thousand injections of the tetanus toxoid to children and, even though some of the subjects previously or at the time had eczema, asthma, hay fever, etc., only 3 children developed a mild general reaction (mild urticaria) from the injections. However, very rarely the first injection of toxoid can so sensitize an individual that a fairly severe allergic reaction may occur with subsequent injections. When the diphtheria toxoid is combined, the reactions in children under the age of 6 years are as a rule also slight. In older children there is more marked reaction because of the increased sensitivity to the diphtheria bacillus protein in older individuals, which apparently does not apply to the tetanus bacillus protein. Consequently, it is wise in older children to give 0.2 cc of the combined tetanus and diphtheria toxoid as a test dose.

9 Although it had previously been stated that combined active-passive immunization is not feasible, the two types of immunization being incompatible with each other, it has recently been conclusively demonstrated that combined immunization of one injection of serum (tetanus antitoxin) and a simultaneous injection of tetanus toxoid, followed by repeated injections of tetanus toxoid in the usual manner, is able to superimpose uninterruptedly active immunity on passive immun-

ity. This insures a permanent antitoxic immunity against tetanus and is the best prophylaxis against tetanus for the nonvaccinated wounded patient. In short, children treated by serovaccination have the same antitoxic response to a subsequent reinforcing dose of toxoid injected after several months or later as patients who have been vaccinated only with the toxoid.

10 For extensive injuries such as would require gas bacillus antitoxin prophylaxis, it is best to give tetanus antitoxin also (the two are commercially available combined in one vial), even though the child was previously actively immunized. In this type of severe injury the incubation period might be under three days, and it may require up to three days to raise the antitoxin titer sufficiently with the boosting dose of toxoid. In any case, if the second injection of toxoid has not as yet been given, a prophylactic dose of tetanus antitoxin should be given under those conditions in which the antitoxin is ordinarily used. Otherwise, a stimulating dose of toxoid is given.

11 Because the repeated injections of toxoid raise the question of occasional (rare) sensitization with its local and systemic reactions, a special tetanus toxoid, topagen, has recently been used intranasally. By using it intranasally for two or three successive days, every six months, the protective level of antitoxin in the blood is said to be maintained at an adequate level in advance of an injury, providing the original two doses have been given by injection. This method is so new that it requires further confirmation.

Active Treatment

Every case of tetanus is a grave emergency, and no time should be lost in instituting treatment regardless of how mild the case may appear. Death is usually due to convulsive asphyxia with tonic fixation of the respiratory muscles. Late deaths may result from pneumonia.

The actual therapy can be divided into (1) sedative therapy, (2) specific therapy with tetanus antitoxin, (3) nursing and symptomatic care, and (4) surgical treatment of the wound.

(1) *Sedative Therapy*—The purpose of sedative therapy is to prevent or control convulsions and in that way prevent death from asphyxia or exhaustion. It is indicated before attempting to carry out any other procedures.

The ideal antispasmodic should rapidly re-

lax the patient enough to allay the convulsions and rigidity without complete loss of consciousness or collapse from the drug. If possible, the cough and pharyngeal reflexes should not be abolished. Avertin fluid (tribromethanol amylene hydrate) meets these requirements. It is easily administered rectally in children, beginning with 25 mg per kilogram of body weight in the average case and repeating with 10 to 15 mg per kilogram every fifteen minutes until moderate relaxation is effected. Usually, it is not necessary to give more than 50 mg per kilogram to gain the necessary relaxation. If severe asphyxial convulsions are already in evidence, the initial dose should be increased to 50 mg per kilogram or, if spasms are absent, it may be reduced to 15 mg. The relaxing effect lasts anywhere from one to six hours or longer; then the above treatment must be repeated for days or weeks until the child remains fairly well relaxed without sedation. If adequate amounts are employed, muscular relaxation ensues within five to ten minutes. The patient should be maintained within the dim border of consciousness, but the onset of restlessness and increasing rigidity calls for more sedation to forestall the onset of an asphyxial convulsion. The advantages of avertin are especially (1) the ease of fractional administration without pain and (2) its rapid and potent action compared with other drugs given rectally. Other investigators have had equal success with seconal or amytal.

(2) *Specific Therapy*.—As mentioned previously, tetanus toxin reaches the nerve tissues through the circulation after being absorbed into the capillaries from the local site of wound infection. If these nerve tissues have already fixed a lethal dose of toxin before serum is used, it will have no value. However, in any given case of tetanus we cannot know whether a full lethal dose has already been fixed. The timely injection of a large amount of antitetanic serum neutralizes the newly formed circulating toxin (elaborated in the wound), preventing it from becoming fixed in the susceptible tissues in lethal amounts. Only that fraction of toxin that has already been fixed by the specifically reactive tissues is decisive for life or death. Any additional circulating toxin may be neutralized and rendered harmless. Neither sedatives nor serum is self-sufficient but are complementary to each other, sedatives to combat the results of toxin already bound to nerve tissue (convulsions and rigidity) and serum to forestall further toxin fixation.

Antitoxin administered *intravenously* will reach and neutralize the circulating toxin most rapidly, and the time element is of the greatest importance. The intraspinal route has been discarded and condemned as dangerous and inefficient.

A single massive dose of 50,000 units is given intravenously. It must be diluted in at least 500 cc of normal saline and given slowly by the gravity drip method to avoid reactions. Another 50,000 units is given intramuscularly for more prolonged absorption. Bio-assay has shown that this amount affords a liberal excess of antitoxin in the blood stream, even a month or more later, capable of preventing further spread of toxin even weeks after the danger period of tetanus has passed. It may be wise to give epinephrine hypodermically some minutes before beginning the intravenous administrations, since a serum reaction might precipitate a fatal asphyxial tetanus convulsion. Also the patient should be tested for unusual sensitivity to horse serum before giving it intravenously.

Recently, it has been advocated to give, in addition to the antitoxin, 2 cc of tetanus toxoid intramuscularly, and then 4 cc and up to 6 cc are repeated at intervals of five or six days. It has been demonstrated that active immunization due to the toxoid follows without interruption the passive immunization due to serotherapy. This is a certain means of avoiding relapses and recurrences.

Lack of improvement in the patient is no indication to continue indefinitely with serum therapy, for once all available circulating toxin not bound by nerve tissue is neutralized and an excess of antitoxin is present, which certainly should occur within twenty-four hours or less, further administration would have no further value. Sedatives and supportive measures must then be relied upon to control convulsions and maintain life until the central nervous system has had an opportunity to recover. It can do this completely providing a lethal dose of toxin has not already been fixed before antitoxin is administered. Occasionally, but uncommonly, after serum administration, signs of brain edema appear. These can be relieved by $MgSO_4$ intramuscularly and 50 per cent glucose intravenously.

(3) *Nursing and Symptomatic Care*.—A nurse, if possible one trained in the care of tetanus patients, must be in constant attendance on a child with tetanus if adequate sedative therapy is to be attained. She must recognize the indications for the repetition of

sedatives and have the equipment always ready for their immediate administration. She should be able to administer avertin herself if necessary. One of the advantages of this drug is that a nurse can be easily taught to administer it rectally.

Nourishment must be given to prevent starvation and exhaustion. It is frequently possible with sedatives to relax the trismus sufficiently so that the patient can take plenty of soft high carbohydrate foods, small curd milk, and fluids by mouth with little difficulty. No chewing should be attempted, food being administered best by bottle and nipple or medicine dropper. The best time for feeding is when the patient awakens by himself and is still sufficiently relaxed, or just as he is going under the influence of the sedative, rather than arousing him especially to take food. In severe cases when the child is unconscious most of the time because of the necessary large doses of sedatives, dextrose and saline can be given intravenously by continuous drip. Subcutaneous administration of fluids is avoided because the pain may cause reflex convulsions. Nasal catheter feedings are dangerous in unconscious children because of the danger of vomiting and asphyxia.

Blood transfusions are useful when sepsis or pneumonia complicate the tetanus or in the late convalescent stages in markedly debilitated or anemic children.

The position of the child should be changed at the times the sedatives are repeated to reduce the incidence of pneumonia—a frequent complication.

The emergency procedure for asphyxia is to give artificial respiration while sedatives are being administered to relax the respiratory spasm.

If excessive mucus accumulates in the nasopharynx, it may be controlled by small doses of atropine. Aspiration by suction is usually contraindicated unless it can be done without exciting the child.

Abdominal distention or urinary retention must be watched for and relieved by enemas and catheterization, but adequate sedatives should be given before disturbing the child for any such treatment.

(4) *Surgical Treatment of the Wound*—As mentioned above, in our experience in most cases of tetanus in children the wound is slight and oftentimes healed, or there is no wound to be found at all. It is questionable whether the wound should be disturbed if it is healing or healed, since the prompt injection of adequate amounts of antitoxin intra-

venously soon neutralizes all the circulating toxin and the toxin being formed locally for some time to come, this may be combined with repeated toxoid injections to superimpose an active immunity on the passive immunity without interruption. Never is a case of tetanus *pér se* a surgical emergency, and no surgical procedure should be attempted until the child is thoroughly relaxed under sedative or general anesthesia, as the excitement might easily produce a fatal asphyxial spasm. Amputation or disfiguring operations are never justified in the surgical treatment of uncomplicated tetanus. In general, *only such surgery as to be recommended as would be required if the patient did not have tetanus*.

Discussion

Dr Francis J. Gustina, Buffalo, New York—Dr Calvin has given us a splendid paper on the present status of the prevention and treatment of tetanus. The first essential in treatment is to give a large dose of tetanus antitoxin intravenously as soon as the condition is suspected. Our scheme is to give 100,000 units at once, diluted with about three times or more of its volume with sterile 5 per cent glucose solution. Every case should be considered an immediate emergency as far as administering the antitoxin is concerned, for we have no way of telling clinically whether the patient may have had sufficient toxin fixed to kill him by the time we see him. The intravenous route must be used to get the neutralizing antitoxin to the affected tissues as soon as possible. One must think of tetanus whenever a patient presents symptoms suggesting the disease, and particularly is this true when local tetanus occurs. If treatment can be instituted prior to the onset of tactile reflex symptoms, recovery is more probable.

The use of combined diphtheria-tetanus toxoid is a real advance in preventive medicine. As Dr Calvin has brought out in the paper, it is an easy and effective way to secure more general protection against this disease which may arise from the most trivial type of wound. That this will prove to be the case in humans even though a new injection of toxoid is not given after an infected wound—provided the person has been previously immunized—seems to be suggested by the experience of the French who have recently reported on the elimination of tetanus in army units, the horses included, after such prophylactic immunization has been carried out. The only disadvantage of using the combined toxoid for active immunization is the possibility of local and occasionally general reactions. In our experience three local reactions of severity have been noted, in these cases an inflamed circumscribed cystic mass developed which appeared to be an abscess. All were left alone and were completely absorbed in varying time—

from two to five weeks. It was a great temptation to do something, but in view of the fact that these were undoubtedly sterile abscesses or liquefied areas it was decided to leave them alone, and this turned out to be quite satisfactory. The incidence of such reactions reported to date has been so low that it should not be a deterrent to the use of this valuable measure.

With respect to general reactions, they have not been observed by us. Our material is chiefly limited to infants, and this may account for the lack of any systemic reactions.

Dr J L McCartney, Philadelphia—Dr Calvin has presented an excellent survey of the prevention and treatment of tetanus and has pointed out that toxoid immunization is now beyond the experimental stage.

This is quite obviously so, as the injection of toxoid is now accepted by the English, French,

and Italian armies. After a test period at the United States Naval Academy at Annapolis on about 3,000 cadets, it is now being accepted by the U S Navy. A report of this work was presented at the recent meeting of the American College of Physicians.

Dr Calvin has pointed out that, after two initial injections of toxoid, a third, boosting or stimulating, dose gives the individual full protection. This dose may be given at regular intervals or immediately after the individual has been injured, and protection is assured in three to five days. A recent article by Gold, appearing in the May issue of the *American Journal of Surgery*, brings out the fact that this booster dose is just as effective if given in the nose as when injected and that the instillation of the toxoid in the nose prevents the reactions that sometimes occur when the toxoid is injected. The toxoid for intranasal instillation is known as tetanus "topagen."

TWISTING THE DRAFT REJECTION FIGURES

Propagandists as well as liars figure, observes the *New York Medical Week*, so it was perhaps to have been expected that interested groups would seize upon the medical statistics of the Selective Service System as an argument for state medicine. Actually there is nothing in these figures either to occasion alarm for the nation's health or to suggest that political control of medical care would better it.

Comparisons between current draft statistics and those of the last war are bound to be erroneous because the standards of physical and mental selection are much more rigid today. Warned by the cost of pensions and veterans' medical services since 1918, the government is seeking to bar potential as well as obvious misfits from the army now in training.

Many physicians believe that some of the reasons for deferment are inconsequential from the practical point of view and that men are being rejected who could prove useful in occupations requiring limited physical activity. This is, of course, for the Army to decide, but it is safe to say that many of those refused as physically unfit are reasonably healthy by ordinary civilian standards and capable of fulfilling the social and economic demands of normal life.

There has, it is true, been a substantial percentage of rejections because of physical deficiencies that cannot be dismissed as unimportant, but few of these can be attributed primarily to lack of opportunities for suitable medical care.

State medicine would not prevent the rheumatic hearts which have kept a considerable number of young men out of training, for, so far, neither the cause nor cure of rheumatic fever is known. Neither would it banish many congenital deformities and traumatic defects for which reparative procedures have not yet been devised.

Rejections for insufficient teeth, defective eyesight, and underweight are greatly to be deplored, because in many cases the disqualifying fault could have been prevented. Here the remedy is public education rather than state-controlled therapy. More stress on proper nutrition, hygienic use of the eyes and other organs, and also early recourse to medical and dental aid would do far more to improve the general level of health than the subjection of medicine to a politically dominated bureaucracy.

On the whole, it may be said that the American youth of today compares favorably in all essential physical respects with his predecessors. If the percentage of military rejections seems excessive, it is because health standards are higher and diagnostic procedures more accurate than in the past. As Dr Roger I. Lee, president-elect of the American College of Physicians, recently declared, there has been overemphasis on the relation of draft medical statistics to the general health of the nation. "A steady fall in death rates is an indication that the American people today are healthier than ever before."

PNEUMONIA IS CONTAGIOUS

Additional evidence that pneumonia is a contagious disease and that all patients with it should be strictly isolated, even during convalescence, is presented in the *Journal of the American Medical Association* for June 7 by Drs Sydney S Gellis and A Grime Mitchell, Cincinnati.

"Nine instances of cross-infection with type I pneumococcus occurred in November and December of 1939 during a period of two weeks in the pediatric service of the Cincinnati General Hospital," the two physicians say. "All the children, with one exception, were between the ages of 2 and 3 years."

ALLERGIC REACTIONS IN THE ABDOMEN

T WOOD CLARKE, M D , Utica, New York

USUALLY when one thinks of the allergic diseases the mind turns to asthma, hay fever, eczema, or urticaria. This is because the earliest recognition of the condition was in these more common manifestations of the allergic reaction.

To confine one's thoughts on allergy to the respiratory and cutaneous systems is an error. The reaction may occur in any organ in the body. According to its type and location many varied symptom complexes may appear. Previously, I have presented the subject of allergic manifestations in the central nervous system.¹ Here I will discuss those in the abdominal organs.²

The allergic reaction may manifest itself in one of four ways—hyperemia, edema, glandular hypersecretion, or smooth muscle contraction. Two or more of these may occur simultaneously. If the condition persists, the resistance of the tissues may become reduced, and secondary infection or chronic proliferation results. This is commonly seen in chronic sinusitis, aphthous stomatitis, or nasal polyp.

Allergic reactions of the gastric mucous membrane may be either acute, chronic, or recurrent. The acute attacks are usually caused by direct contact. When a person takes a food to which he is markedly allergic there may be a prompt urticaria at all points of contact. The lips may swell tremendously, the esophagus may become edematous, and the swelling of the gastric mucous membrane may cause violent vomiting, with or without abdominal pain.

A number of years ago a baby, aged 13 months, was referred to me by Dr Girard, then of Lyons Falls, who suspected intestinal obstruction. The child had been vomiting for four days. The bowels had moved the first day but not since. The child was in collapse, semiconscious. Except for the lack of blood in the stools the picture was typical of intussusception. A barium enema, however, filled the colon completely. The symptoms were so suspicious that the barium enema was repeated. Again the findings were negative. The vomiting continued. As the baby appeared to be starving, 1 ounce of skimmed milk was given. In a few minutes a urticaria appeared over the entire body. This sug-

gested that the vomiting was a manifestation of cow's milk allergy. Skin tests gave a reaction to cow's milk casein and lactalbumin and to goat's milk. Milk was discontinued. Glucose enemas were given and a milk-free diet was prescribed. Vomiting stopped promptly, the baby became conscious, took its food ravenously, and during the week it remained in the hospital gained $1\frac{1}{2}$ pound in weight. Such violent vomiting occurring during the first few weeks of life may be difficult to differentiate from pylorospasm. Some authors claim that true pylorospasm may have an allergic etiology.³

The chronic manifestations of gastric allergy may be caused by direct contact or as a part of a systemic allergic reaction. The chronic hyperemia or edema of the stomach wall may cause bad breath, coated tongue, anorexia, flatulence, eructation of gas, vague, more or less severe pains, or indefinite abdominal discomforts—all the symptoms popularly called dyspepsia.

When the edema has lasted some time, ulceration may follow. During the last few years a number of authors⁴ have reported cases indistinguishable from peptic or duodenal ulcers which have proved to be the direct result of gastric allergy. In these cases the offending protein has usually been egg, wheat, or milk. As soon as the causative protein has been identified and removed from the diet the symptoms have disappeared, and x-ray examinations have shown rapid healing of the ulcer. Feedings of the offending protein causes prompt return of the symptoms. It is important to recognize this relation of allergy to gastric ulcer, especially in cases that do not show prompt recovery when placed on the Sippy diet. Where the ulceration is due to a milk allergy the condition is aggravated by the milk in the Sippy diet. Withdrawal of milk will cause prompt permanent recovery.

The recurrent manifestations of gastric allergy are best exemplified by the so-called cyclic vomiting of children, a condition frequently of allergic origin.⁵

Intestinal symptoms due to the allergic reaction may also be either acute, chronic, or recurrent. A violent diarrhea, sometimes bloody, may follow a few hours after the ingestion of some food to which the patient is sensitized.⁶ On the other hand, the sudden

edema of the intestinal wall may be so great as to cause a temporary occlusion of the bowel with symptoms of intestinal obstruction

A few years ago I was called in to see a child whom I had been treating for asthma. She had been taken ill suddenly with violent vomiting, intense abdominal cramps, and collapse. On examining the abdomen a round movable mass the size of a small orange was discovered to the left of the navel. The father, a physician, assured me that the mass had not been there the day before. Suspecting that the mass was due to impacted feces, I recommended an intestinal cleansing. The next day the mass had disappeared. A month later, however, the attack recurred when there was no suggestion of an underlying constipation. This happened several times, until the father appreciated that the attacks occurred whenever the child was given an egg. On an egg-free diet the attacks failed to recur.

In other cases the attacks of acute abdominal pain, vomiting, and rigidity may so closely simulate acute appendicitis⁷ or cholecystitis as to indicate immediate operation. On opening the abdomen no acute inflammation is found. The appendix or the wall of the gallbladder may be swollen and edematous but not reddened, or there may be a localized edema of a portion of the intestine or of the parietal peritoneum. If the appendix is removed, it will show eosinophilic infiltration. In such cases, even after the appendix has been removed, the attacks will usually recur to the mortification of the surgeon. The recurrent attacks of edema of the appendix due to allergic attacks may result in a true infective appendicitis.⁸ Henoch's purpura, which combines purpuric eruptions on the skin with acute abdominal pain, is now recognized as a manifestation of allergy.⁹

When the allergic reaction in the small intestine is chronic or recurrent the picture is that of chronic intestinal indigestion, loss of appetite, recurring pains, and tenderness located first at one point then at another, sometimes constipation and at other times diarrhea. The sufferer from this type of allergy lives a life of unhappiness and discomfort, travels from physician to physician, either submits to numerous operations that give no relief or is assured that there is nothing wrong or that the symptoms are the result of that useful hook on which we hang the hat of our ignorance—a functional neurosis.

A few months ago such a case was sent to me. She was a married woman, aged 27.

Her family history included a grandfather who suffered from repeated headaches and a cousin who had asthma. In childhood she had vomiting attacks about once a month. At 16 she began having severe headaches, associated with vomiting, about once a week. These had continued up to the present. She had also suffered for years from attacks of abdominal pain located in various parts of the abdomen. She had hives if she ate strawberries. She was constipated. Two years ago her condition was diagnosed as chronic appendicitis and the appendix was removed. No improvement resulted. This spring her physician told her that her trouble was in the gallbladder and that it must be removed. She went to Syracuse for the operation where careful examinations by a surgeon and a roentgenologist failed to demonstrate any evidence of gallbladder disease. She was then referred to Dr. Hitchcock, an internist. Dr. Hitchcock, in consideration of her history of migraine and urticaria, suspected that the case might be one of intestinal allergy and referred her to me.

On the first day's testing she gave a suspicious reaction to wheat by the scratch test. This was confirmed later by a strong reaction to the intradermal test. Wheat was removed from her diet and in two days her abdominal pains had disappeared. During the past six months she has had no headaches, vomiting, or abdominal pains, she gained many pounds in weight and says that for the first time in ten years she feels quite well. Whereas she has always lived on a most carefully selected and restricted diet, she now eats anything she wishes provided it contains no wheat.

When the reaction is confined to the colon a different picture appears. Here we usually get three of the characteristic allergic reactions: edema of the mucosa, spasm of the muscle wall, and hypersecretion of the mucous glands. These three combined give the classic picture of mucous colitis. It is now nearly twenty years since Vaughan¹⁰ called attention to the fact that mucous colitis was a manifestation of food allergy, an opinion confirmed by many allergists since that time.

Recent roentgenologic studies of mucous colitis have conclusively demonstrated spasticity of the colon when the offending protein is given either by mouth or incorporated in a barium enema.¹¹

Today all allergists agree that most cases of mucous colitis are allergic in origin, and some insist that all are. When the cause, usually wheat, is discovered and eliminated from the

diet the symptoms disappear promptly. If the colonic edema persists, the resistance of the mucous membrane is lowered and an ulcerative colitis¹² or colonic polypi¹³ may result. In such cases the treatment of the ulcerative colitis or polypi is greatly simplified if the underlying allergic factor is discovered and removed from the diet.

In 1940 Necheles and his associates¹⁴ at the Michael Reese Hospital have reported a series of 6 cases of gallbladder allergy in which careful x-ray examination demonstrated a hyperactivity of the gallbladder wall associated with gallbladder colic when the food to which the patient was sensitive was administered.

Although eighteen years have passed since Duke¹⁵ first called attention to the fact that the allergic reaction could occur in the urinary system, few urologists even give the matter a thought. It is well known that acute nephritis and hematuria may occur as an accompaniment of serum sickness, proving that anaphylactic changes can occur in the kidneys.¹⁶

In the bladder, too, allergy may play an important role in the production of symptoms. All students of allergy report cases in which bladder pain is the result of allergic reactions in that organ. Edema combined with muscular contraction of the bladder wall may result in excruciating pain and tenesmus. If the allergic condition is allowed to progress, polypi or ulceration may result. When secondary infection occurs the presence of pus in the urine may cloud the picture.

Two such cases have come under my observation lately. The first was a young married woman, aged 22. In her family history her father has had two attacks of urticaria and her great uncle had asthma. Her sister has perennial hay fever. As a child she had a slight eczema at the bend of the elbows. At the age of 12 a mild attack of appendicitis was followed by an appendectomy. During her convalescence from the operation she had an attack of pyelitis lasting several weeks.

Ever since then she has suffered at frequent intervals from severe pains in her bladder, considered to be the result of cystitis. Usually her urine was clear but at times there would be a few pus cells. All through her life in boarding school and college she would be obliged to stay in bed at frequent intervals and apply heat over the bladder region. At times the pain was severe. No form of local treatment had any effect on the attacks. In February 1940, when consulting Dr. Sears in Syracuse,

the possibility of her symptoms being due to bladder allergy was discussed, and a complete allergic study was recommended. Though the scratch tests were negative to all foods, intradermal tests gave definite reactions to wheat and chocolate. These were removed from her diet. During the next seventeen months the patient, who previously rarely went a week without an attack, has been entirely free from pain except, when on one or two occasions, social duties necessitated her eating some food containing wheat.

The second case is a woman, aged 50. For several years at her summer home she has had attacks diagnosed as cystitis. This fall on returning to Utica, though she was complaining of severe bladder pains, her urine was found to be either free of pus or to contain only an occasional leukocyte. Treatments, first with mandelic acid and then with urotropin, failed to give more than temporary relief. An allergic study was made, and this patient also gave reactions to intradermal tests with chocolate and wheat. She had herself been suspicious of chocolate. Since removal of these from her diet she has had no more pains in her bladder except once after eating a little chocolate.

In the sphere of the gynecologist, cases have been reported of dysmenorrhea, menorrhagia,¹⁷ and irritation and excoriation of the vulva¹⁸ due to food allergy being completely relieved by an allergic study with resultant dietary reform.

The most important factor in the diagnosis of abdominal allergy is an appreciation that such a condition exists and that it can simulate any known acute or chronic abdominal lesion. In making a diagnosis of any so-called surgical belly, the possibility of allergy must be kept in mind. When the abdominal pain is associated with an attack of asthma or a crop of hives, allergy is at once suggested. If there is a family or past history of other allergic manifestations, allergy must be seriously considered. It frequently happens, however, that the allergic manifestations occur in the abdomen and nowhere else in patients with no suggestive history. In such cases the diagnosis is not easy and one must be guarded in making it.

To refrain from operating on a patient with acute appendicitis, intussusception, or perforated gastric ulcer in order to make an allergic study requiring several days would be criminal. Even in these acute cases, however, we have one diagnostic help. If the case is allergic, a hypodermic injection of adrenalin

will usually cause prompt relief of the symptoms. In the true surgical abdomen such relief will not occur. In all such acute cases, unless relieved by adrenalin, it is safer to operate first. Then if the symptoms recur, think of allergy.

It is in the patients with chronic abdominal pain that the allergic study should be made, especially in those patients in whom an exact diagnosis cannot be made by the ordinary means. In patients with chronic symptoms suggesting indigestion, peptic ulcer, cholecystitis, appendicitis, colitis, and cystitis the allergic examinations are of most value. They should not, however, be undertaken until careful physical examination and complete x-rays and laboratory tests have failed to show any organic lesion. If an expected leukocytosis is lacking and especially if there is any degree of eosinophilia, allergy should be strongly suspected. A family and past history of allergic diseases is significant and should be inquired into carefully. The diagnosis of abdominal allergy is not easy. The scratch tests, if they work, give us valuable hints as to the presence of an allergic condition and the nature of the etiologic factor. Unfortunately, in abdominal allergy they all too frequently fail us. The intradermal tests are more reliable. They, however, are far from infallible. The tests should be made because, if they do work, they give the diagnosis in a few days and may save many weeks or months of tedious dietary experimentation. If the tests do not work and usually even if they do, we have to carry on systematic dietary study and experimentation to reach a definite diagnosis.

Even if it takes weeks or months to reach a conclusion as to the cause of the symptoms in these chronic sufferers from abdominal allergy, the relief obtained, either by eliminating the offending protein from the diet or desensitizing the patient thereto, is so complete and the unhappy invalid is so easily returned to health without the danger and expense of a useless and unsuccessful abdominal operation that all the time and trouble involved are well spent.

The point I want to stress is that when you are confronted with an acute or chronic abdominal condition in which the symptoms and signs are atypical and the diagnosis is doubtful you should remember that the allergic reactions may occur in any of the abdominal organs and you should give the possibility of your case being one of abdominal allergy serious consideration.

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PURPLE COW OUTDONE

I've never seen a vitamin
I never hope to see one,
But druggists are all getting rich
Dispensing one called "B-One."

ROBERT W. ROCHES—New York Sun

SHORT CUT

Doctor "I'm sorry, but I'll have to open you up again. I can't find my other rubber glove."

Patient "No more cutting. Here's a dollar—go out and buy yourself another pair."

—Exchange

THE RESPONSIBILITY OF THE GENERAL PRACTITIONER IN CHRONIC GLAUCOMA

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BLINDNESS from glaucoma is usually due to negligence on the part of the patient in obtaining medical advice and treatment before the disease is far advanced. The importance of bringing seemingly minor eye complaints to the attention of the doctor is being emphasized more and more by medical organizations, through literature and broadcasts, as well as by the National Society for the Prevention of Blindness. But judging from the large number of self-neglected cases of glaucoma seen in the average eye hospital, the work in this direction, although splendid, needs to be intensified.

Let us assume now that the patient has been convinced and consults his family doctor. Is the average general practitioner able to recognize chronic glaucoma where there has never been a typical acute attack? To be sure, the patient with a red, painful eye or with vision markedly diminished will be sent to the ophthalmologist. But what about the patient whose symptoms may be merely headache, or perhaps nausea, where the visual disturbance seems to him to be relatively unimportant, slight, or to come at a time of day or evening when he does not notice it or expects vision to be dim? Can we be sure that the patient being treated for chronic sinusitis or for some of the disturbances of the climacteric is not also (or instead) suffering from glaucoma? Or that mild attacks often diagnosed as migraine are not in reality transient increases in intraocular tension? Or that headaches and visual disturbances in patients with hypertension, and attributed to that disease, are not manifestations of glaucoma? Or that the man or woman who visits the optometrist because of poor vision is not being contented with a pair of glasses instead of being sent to receive early treatment or surgery for glaucoma? Such cases are fortunately less common than formerly, but they continue to appear frequently in any eye clinic or in the office of any ophthalmologist.

Forgetting for the moment the question of whether optometrists should or should not examine for glasses, the fact remains that many persons go to them for ocular complaints and because they do the optometrists should also take note of the facts mentioned

The refinements of glaucoma detection such as measurement of intraocular tension, plotting blind spots or scotomas, and using the various therapeutic tests, need not be discussed here because they belong in the field of the ophthalmologist. Nor does the average practitioner have facilities for measuring refractive errors or defects in accommodation. The presence of cupping of the optic disks or pulsation of the retinal arteries, if present, are useful signs. Unfortunately, in some cases these signs are not marked. Atrophy and cupping must be distinguished from a wide physiologic excavation, and arterial pulsation must be distinguished from venous pulsation, which is normal. For the practitioner who is not so much at home with his ophthalmoscope as with, let us say, his stethoscope, the difficulties are further increased by the danger of dilating the pupils in suspected cases of glaucoma. But there are certain things he can do to enable him to suspect the presence of glaucoma in its early stages, thus obviating the necessity of referring cases indiscriminately to the ophthalmologist.

The most important facts to keep in mind are that a patient with chronic glaucoma, even moderately advanced (1) may not have noticed diminished acuity of *central* vision, (2) may never have noticed, unless he is extremely alert, a diminution of the *peripheral* visual field until the defect is so marked as to cause stumbling over articles of furniture, etc., (3) may not have experienced ocular pain or, having felt it, either disregarded it or was conscious mostly of supraorbital pain or headache (and considered it sinusitis or "eyestrain"), and above all (4) may *never* have experienced an acute attack (severe ocular pain, headache, red eye, diminished vision, nausea, vomiting, etc.).

This seems to leave us very little but actually shows the need of somewhat more careful questioning. Many early cases will have nothing more than transient periods of dull ocular or supraorbital pain, spells of foggy or cloudy vision, or very commonly a combination of both slight pain and fogging. This is especially apt to occur toward evening or during periods of stress, fatigue, emotion, etc. If these occur at night, the patient may

have observed multicolored halos around distant lights, such as street lamps. *Any case of ocular, supraorbital or frontal discomfort on one or both sides, associated with foggy or blurred vision, is presumptive evidence of glaucoma* and calls for more extensive investigation. This holds true even if the visual acuity on the Snellen Chart is 20/20 at the time of the examination, for many cases of even advanced glaucoma will retain good central vision. And this is also true if at the time of the examination the patient's eyes are entirely uninfamed and do not feel hard to palpation with the finger tips.

The other important sign, which, with a little practice, can be of value to the general practitioner, is narrowing of the visual field. To be sure, quantitative measurement of the field by means of the perimeter or tangent screen is within the sphere of the ophthalmologist. But it is possible for the practitioner to determine a *qualitative* field defect by the following simple method, which can be employed without use of any special apparatus.

The physician and patient stand confronting each other and about 3 feet apart, the patient having his back to the window or other source of light. If the test is performed in the evening, any lights overhead or in front of the patient should be extinguished, leaving only whatever light comes from behind him. The patient is instructed to hold his left eyelid down with the forefinger of his left hand (keeping the other four fingers flexed so as not to obstruct the vision) and to look steadily with his right eye at the left eye of the physician facing him. The physician keeps his right eye closed and, with his left eye, fixes the gaze of the patient's open eye (the patient's right eye and the doctor's left eye are, of course, opposite each other as doctor and patient confront each other).

The patient is shown the test object which need be no more elaborate than a small florist's pin with a white head, preferably about 3 mm ($\frac{1}{8}$ inch) in diameter attached to a thin black or dark gray rod about 12 inches long. He is instructed to say, "Yes" or "I see it," each time this white object is perceived by him at the edge of his visual field.

The physician then holds the object far to the side, as nearly as possible on a plane midway between him and the patient, and brings it slowly toward their line of vision. *If the patient's field is normal, he should perceive the object at the same point as the physician. If*

the field is contracted in that meridian, he will perceive it somewhat further inward. This is repeated for all eight meridians—i.e., nasally, above and nasally, above, temporally and above, temporally, etc. Then the left eye is tested in the same manner—left eye looking at the physician's right eye.

This method actually amounts to the comparison by the examiner of the patient's visual field with his own and, though approximate and qualitative, with practice can be made useful in discovering gross field defect, which in many cases of even moderately advanced glaucoma is the only definite symptom detectable without the use of special methods. Another advantage is that it is rapid, an approximate estimate of the extent of the field in both eyes requiring less than five minutes. It should be stressed that this procedure requires some practice and that this is best done first on a number of cases with normal fields.

Where there is evidence of defect, especially in the nasal portion of either field, in a patient complaining of headache, supraorbital discomfort, or visual disturbance, this also is presumptive evidence of glaucoma.

Summary

1 Diagnoses most frequently made in cases in which chronic glaucoma has been missed or obscured are (a) chronic sinusitis, (b) refractive errors and eyestrain, (c) menopause or menstrual headache, (d) migraine, and (e) vascular hypertension. (Others are retrobulbar neuritis, chronic nephritis, early uremia, brain tumor, iritis, syphilitic meningitis, and multiple sclerosis.)

2 Chronic glaucoma often insidiously goes on to blindness without any of the violent symptoms (inflammation, severe pain, vomiting, etc.) commonly associated with acute glaucoma.

3 A patient with moderately advanced chronic glaucoma may have normal central visual acuity and may not notice loss of peripheral visual field until one eye becomes blind or nearly so.

4 Careful questioning of many patients complaining of headache will elicit associated symptoms, albeit transient, of visual disturbance, fogging, or supraorbital discomfort in glaucoma.

5 A simple method is described by which the general practitioner can determine rapidly, and without special apparatus, whether there is any gross defect in the visual field.

6 Association of headache or visual disturbance or ocular discomfort with defect in the visual field is presumptive evidence of chronic glaucoma

Conclusion

As in many other serious ailments, the difference between a satisfactory outcome and tragedy in chronic glaucoma depends on

early recognition and treatment. To this end it is urged that (1) the education of the patient be furthered so that he will go to his doctor with symptoms that he might ordinarily ignore and (2) the practitioner become more glaucoma-minded in order that he may be able to suspect the presence of the disease in its early phase

983 Park Avenue

MEANINGLESS DICTION IN MEDICINE

Dr Ramsay Spillman, of New York City, recently wrote an interesting letter to the *J A M A* which has aroused approving comment in medical circles. His letter runs

"To the Editor—Twice today I have had telephone calls, from independent sources, stating that a 'complete g-i examination' was desired. On cross examination—which should not be necessary but which I can testify is—it was revealed that an examination of only the stomach was desired.

"How much wasted effort and often expense would be saved if physicians could get together on terminology! To a roentgenologist g means gastro and i means intestinal, and any referring physician who gets on a high horse to my secretary when she tries to find out whether a 'complete g-i examination' means a stomach and colon, a stomach and small intestine and colon, or only a stomach is in a vulnerable position, as people always are who ride on high horses. If the terminology used by many physicians of my acquaintance reflects their school-day teaching, the teaching has been sloppy.

"Another thing that annoys me is for physicians to request a 'g-u examination.' G stands for genital and u for urinary, at least to me, and there is seldom any occasion to examine a man's genital apparatus when the point at issue is a stone in his urinary apparatus. In fact, I have gone to considerable pains to try to educate some of the profession that any irradiation of the germ plasma of any person who is not past the reproductive period—and who can say, in the case of a male, when a patient is past any possibility of reproducing his kind?—is fraught with dire consequences to future generations unless the human germ plasma reacts differently from the germ plasma of the twenty-nine genera of other animals that have been studied to date.

"Another daily request that reflects a total lack of comprehension of semantics is to ask for a 'flat plate.' A plate is made of glass, and I never saw one yet devoted to roentgenographic purposes that was not flat. Glass plates went out not long after bustles did, today films are used, and they are just as flat as glass plates ever were, unless one wants to lay emphasis on the curved cassette that had a vogue a few years ago, even the product of this gadget

was flat when it was put up for inspection. To ask for a flat plate when a film is meant, or even to ask for a flat film, is like asking for an egg omelet. I think that what is meant is a single film as opposed to a stereoscopic pair, at least the context practically always leads to that conclusion. It doesn't mean that it is desired to have the patient flat on the table, because I am frequently asked for a 'flat plate upright' when the question is the determination of the presence of air under the right diaphragm in a case of suspected perforated ulcer.

"As I get older, I look back with even more sympathy than I had at the time on my erstwhile professor of surgery Charles L. Gibson, who invariably interrupted the student who mentioned 'lymph glands' with 'please don't say lymph glands in my clinic,' and would explain that glands are epithelial structures with a secretion, which lymph nodes quite definitely are not. One can search the whole world over but will never find a Cornell graduate of Gibson's time who will say 'lymph glands.' However, the misuse of the term is so well nigh universal that if a man says 'lymph nodes' one can bet with reasonable safety that he was once a student of Gibson's.

"To go out of my own field, which I was never averse to do, I should like to pay my respects to the persons who can spare no longer designation for the wares of the string galvanometer than 'E.K.G.' To ask for an elektrokardiogramm by the initials of its component German words is to pay homage to a language which at the moment is not identified with scientific freedom. If Einthoven could go to the trouble to invent the string galvanometer, I think people should go to the trouble to pronounce 'electrocardiogram.' I'm not saying that I think they will, I'm just saying that I think they should.

"The late Dr E. W. Caldwell used to say that roentgenology would be an enjoyable occupation if it weren't for the patients. I will modify that to say that roentgenology wouldn't be so bad if physicians would only tell the roentgenologist what they mean. There used to be a song upward of thirty years ago—if I recall correctly, it was in a show of Raymond Hitchcock's—that went, 'If people said the things they mean, And meant the things they say' It's still good."

CHEERIO!

"An optimist laughs to forget, a pessimist forgets to laugh."
—*Ills Med J*

WHY NOT DO IT THEN?

"If all men who sleep in church were laid end to end, they would be more comfortable."

OCCUPATIONAL ASTHMA AND VASOMOTOR RHINITIS

An Outline of Some Common Industries Where These Symptoms Are Initiated

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THAT allergies of the respiratory tract can be induced by occupational contact has been known for years. Here the worker inhales chemicals, drugs, and the various dusts that emanate from the different materials in his daily routine. Modern industrial pursuits have added to the incidence of asthma and vasomotor rhinitis in subjects that are hypersensitive.

We shall discuss only those cases where the occupation is of primary importance to the one who is potentially allergic. This means that we shall not deal with those occupations that act as aggravating factors through physical or chemical means—such as irritating fumes, odors, etc. We shall endeavor to outline those common industries where the potentially sensitive individual comes in direct contact with certain antigens (allergens) to which he becomes specifically sensitized through direct exposure after a variable period of time.

The principal symptoms produced in these allergies of the respiratory tract are those of asthma, vasomotor rhinitis, or both. Symptoms of vasomotor rhinitis may precede or follow an attack of asthma, or these nasal symptoms may be present in various degrees without any asthmatic manifestation. Asthma, however, is usually more frequently observed. The prodromal symptoms may first appear with a mild cough or slight dyspnea during working hours. Later they may become so severe that the patient may find it impossible to continue his particular duties.

The occupations that can initiate the above symptoms are quite numerous and depend upon the industry of a particular region or location. Although these occupations do not present a hazard to the majority of workers, they ultimately do become such to a small number of individuals who have an allergic background or tendency.

Positive skin reactions are usually obtained in these industrial allergies when the causative agent is not a chemical or drug. (However, drugs that are of a protein nature, such as caroid, lycopodium, etc., may give skin reactions.) Chemicals and drugs are poor antigenic substances. Hence, those patients whose symptoms are induced by these ma-

terials rarely have floating antibodies (reagents) in their blood stream. Chemicals and drugs, therefore, may cause asthma or vasomotor rhinitis in a hypersensitive individual without one being able to elicit a positive skin reaction with them. Occasionally, we do see a positive skin reaction with a chemical or drug, but that is rather rare, and when it does occur it may become extremely dangerous in creating a constitutional reaction. Intradermal tests with these materials, therefore, should always be attempted with the greatest caution and with highly diluted extracts at first. If no reaction takes place, higher concentrations can be tried later on. The novice in this field will be safer in trying the scratch or scratch-patch test instead. Hence, before a diagnosis is made in a patient where a drug or chemical is suspected we may have to depend upon a careful history, on the physical examination, and on a microscopic search of the nasal and bronchial secretions and of blood for an increased eosinophil count. Frequently, we have to resort to an environmental test—of great assistance in these particular cases.

The ideal treatment of these respiratory allergies should be based upon the removal of contact of the offending cause. As this is usually not practical to most workers, hypsensitization should be tried so as to increase the tolerance of the particular antigen. When one deals with a chemical or drug this should not be attempted for reasons already mentioned.

The following workers are most commonly affected in this region: bakers, furriers, metal polishers, coffee, soy, cacao, and castor bean handlers, refrigerator workers, jewelers, hat makers, rag sorters, woodworkers, poultry dealers, pharmacists, upholsterers, and beauticians.

Bakers—Bakers come in contact with flour, and those who are allergic may develop a sensitivity to wheat, rye, buckwheat, etc. Hallermann¹ states that intracutaneous tests are unreliable and suggests that these be made by blowing the flour on the nasal mucosa. Uhrbach and Wiethe,² as well as Hallermann,¹ have had good results by injecting the antigen into the nasal mucosa. We never had to resort to this form of diagnosis, for in the great

From the Department of Allergy, Beth Israel Hospital.

majority of cases we did get positive skin reactions by means of the intracutaneous method, using an extract of the suspected flour. Treatment is fairly satisfactory by means of hyposensitization with the offending antigen. Wearing a mask or a filter is of great benefit, but unfortunately few of these workers wear such protectors because of the fear of losing their position when discovered that they are sick.

Furriers—Furriers may become sensitive to (a) the fur itself, (b) "paraphenylenediamine" (ursol D), which is the most common dye used, or to any of the seventy-eight different ursols, (c) some insecticide, such as "paradychlorbenzine" that is generally used in the fur trade²⁸, or (d) "chumondumin," an incomplete oxidation product resulting from the reaction of hydrogen peroxide and ursol. In the final stages of the dyeing process the fur is washed with hydrogen peroxide in order to remove any of the unused dye. A careful history is of great importance. The worker is often able to state the particular fur, chemical, or dye that brings on the asthmatic attack.

It is important to remember that most of the cheaper grade furs are usually dyed, or otherwise prepared, rabbit fur. Rabbit skins that are not of a pure white color are dyed, sheared and plucked, and made to resemble almost any genuine fur. They are prepared as cheap substitutes for sable, hudson seal, red fox, lynx, mink, mole, nutria, etc.³ White rabbit skins undyed are sold as white fox or, when bleached, as ermine. It is, therefore, not unusual to find a patient who states that he gets an asthmatic attack when in contact with ermine or white fox but gives a negative skin reaction to these particular furs and a positive reaction to rabbit hair.

In the process of dyeing, furs lose most of their antigenic material. Therefore, they rarely initiate allergic symptoms from their original dander, which has been washed off or altered completely. However, when a dyed fur is suspected we have to think of the other possible factors that might have entered, such as a ursol preparation, chumondumin, or some insecticide.

That the dyes may cause a varied amount of asthma or vasomotor rhinitis among furriers has been known for many years. Criegern,⁴ in 1920, published 40 cases of "poisoning caused by chumondumin." Curschmann,⁵ in 1921, presented 6 cases of ursol asthma. He stated that the allergen was not ursol but its oxidation product, chumondumin. He further stated, as also did Mehl⁶ and Gerdon,⁷

that the symptomatology was due to a hypersensitivity. Genkin and Owtschinski,⁸ after a study of 31 cases of ursol asthma, all of which gave negative scratch tests, thought as did Bock⁹ and Meyer¹⁰ that allergy was not the cause and again revived the toxic theory of ursol asthma. Forker,¹¹ in 1935, in his work on the various types of ursols states that seventy-eight different ursols are used in the dyeing industry. Of all these, the chemical formulas of twelve are known. The rest could not be determined because, as the dye manufacturers stated, "a trade secret was involved." The ursols are usually denoted by a letter or group of letters, i.e., ursol D, DD, 2GA, etc. Forker¹¹ tested patients with ursol asthma with a 2 per cent ointment (patch tests) using thirteen different ursols and found that only six gave strongly positive reactions. He concludes that tests on a patient with ursol asthma should be made not only with ursol D but also with ursols DD (gray-white), DF (black-gray), SB (black-blue-gray), DMG (black), P (dark gray-black), and NZ (light gray-blue).

Hyposensitization of these cases is practically impossible, and an effort must be made to avoid the causative agent. This may sometimes be accomplished by shifting the worker to a different part of the plant.

Beauticians—The most common cause of symptoms in beauticians are the powders and rouges that contain orris root. The process of dyeing hair (ursol or henna) may cause respiratory symptoms.

Another cause of asthma or vasomotor rhinitis in these workers appears to be the hair-setting fluid used in hair-waving. Feinberg¹² states that the usual composition of hair-setting materials (as given in a U. S. Department of Agriculture *Bulletin*) are quite varied and, among other things, contains acacia, gum tragacanth, linseed gum, quince-seed gum, karaya gum, various flaxes, and inorganic compounds. Bullen¹³ reported a patient with allergic rhinitis, and by applying Cooke's postulates definitely showed the case to be caused by karaya gum. In a discussion of the paper Baldwin referred to quince-seed gum in a hair lotion and also stressed the atopic sensitivity to acacia. Grant,¹⁴ in 1932, reported a positive skin test to flaxseed in a patient who was using a hair-wave preparation. One of us (L. S.) is treating a hay-fever patient (beautician) who used to develop attacks of asthma whenever she gave a permanent wave to a customer. She gave marked skin reactions to the hair-wave lotion that she was using and

also to indian gum These tests were also positive on passive transfer It is only after a careful history is elicited and the causative agent is found that the worker can be told what to avoid in order that the recurrent attacks be controlled

Hat Makers—Hat makers come in contact with many materials used in the making of felt—such as rabbit hair, cotton, wool, and silk Sometimes they are found sensitive to a bleaching agent used in the manufacture of these hats Banana oil and oxalic acid are the most common used in this trade We were able to get a positive scratch test with the banana oil in 1 out of 2 patients This patient was advised to look for some other employment since treatment with the oil could not be tried for fear of a constitutional reaction

Jewelers—In reference to jewelers, one of us (L S) recently observed a patient whose attacks of asthma occurred only on days when rings were being made from molten ore Here the gold is poured into molds made of cuttlefish bone, and fumes are given off when the ore contacts the mold This patient gave a marked skin reaction to the cuttlefish bone extract His passive transfer test was also positive Another patient, also a jeweler by occupation, developed attacks of asthma whenever he used cuttlefish bone for polishing purposes He likewise gave marked skin reactions to cuttlefish extract His Prausnitz-Küstner test was also positive It is interesting to note that in both of these cases all other skin tests were negative, including all other fish extracts used The second patient received a fair result from hyposensitization with cuttlefish extract The first was able to eliminate contact Weston¹⁵ reported a similar case in 1930 Markin¹⁶ demonstrated a case in a jeweler who was sensitive to the dust (boxwood) shavings used in polishing gold This patient improved when placed in a smaller shop where this procedure was not carried out

Rag Sorters—Rag sorters may be sensitive to the particular type of rags they handle (wool, cotton, silk, linen, etc), or they may become sensitive to the dust present in their factory In a recent case that we came across the patient had been a rag sorter for three years He complained of asthma of four months' duration Skin tests with inhalants, contactants, and stock dust were negative An extract prepared from the dust of the factory where he was employed gave a positive skin reaction Hyposensitization did not help him very much, and he was obliged to give up his occupation

Leaky refrigerators give off sulfur dioxide, and those sensitive to this gas often get attacks of asthma and vasomotor rhinitis Dowling,¹⁷ in 1937, reported a case of asthma following prolonged exposure to sulfur dioxide Romanoff¹⁸ has recently published 3 such cases There is no method of skin testing for sulfur dioxide which we possess at the present time The case that came to the attention of one of us (L S) was a counterman in a restaurant who developed asthma whenever the refrigerator became out of order He developed symptoms hours before anyone was able to notice the offending gas These included itching of the eyes, sneezing, and coughing When the gas became more concentrated he began to wheeze During two of these attacks adrenalin chloride was required to give him relief This patient was also a hay-fever sufferer, sensitive to ragweed, but never suffered from asthma except when his refrigerator was out of order

Metal Polishers—Metal polishers use different kinds of rouge in their occupation This is a mixture of various resins, bichromates, oxalic acid, and turpentine Those sensitive to these chemicals usually give negative skin reactions but do give a definite history of asthma while at work Treatment, whenever possible, is elimination or change of occupation

The *coffee bean* may cause allergic manifestations not only when ingested but also when inhaled Walzer¹⁹ mentioned several cases of respiratory allergy among grocers who ground their own coffee Walker²⁰ and Rich²¹ also mention several cases of asthma and vasomotor rhinitis in coffee sifters One of us (L S) has come across a patient who worked in a coffee plant and suffered attacks of asthma whenever he entered the roasting chamber Another patient suffered from both asthma and vasomotor rhinitis whenever she inhaled the fumes from the coffee that she prepared while working in a restaurant Both cases gave positive skin reactions to coffee extract They were also positive on passive transfer The second case improved with hyposensitization Another patient had marked vasomotor rhinitis for five years when in contact with cacao beans in a cacao bean warehouse He developed these symptoms after fourteen years of exposure and was quite comfortable week ends at home He gave positive skin reactions to a cacao bean dust collected in the warehouse and also to chocolate He has improved under treatment with the dust mentioned

Poultry Dealers—Poultry dealers sometime

majority of cases we did get positive skin reactions by means of the intracutaneous method, using an extract of the suspected flour. Treatment is fairly satisfactory by means of hyposensitization with the offending antigen. Wearing a mask or a filter is of great benefit, but unfortunately few of these workers wear such protectors because of the fear of losing their position when discovered that they are sick.

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THE USE OF VITAMIN K IN OBSTRUCTIVE JAUNDICE

GEORGE S REED, M D , Syracuse, New York

THE problem of the jaundiced patient is not new. The types of jaundice and their causes are well known. Fortunately, the type classified as obstructive jaundice is the least frequent of the entire group, and it is in this class that hemorrhage, the thing that has given us so much anxiety, occurs. I shall limit my presentation to cases of obstructive jaundice caused by common bile duct obstruction, either from stone, tumor, injury, or pathology in the head of the pancreas and, likewise, that due to obstruction in the liver from some pathology not clear.

For years the chief concern in the treatment of obstructive jaundice has been what to do about the hemorrhage if and when it occurs. We have all tried the following methods to prevent or relieve such a condition: transfusions of whole or citrated blood, calcium in many forms, serums and chemicals to improve blood coagulation, and all these things often to no avail. Now at last it appears that a method has been discovered by which hemorrhage can either be prevented or stopped when it does occur.

In 1935, Dam, a Scandinavian scientist, showed that the lack of a fat-soluble substance, which he called vitamin K (coagulation vitamin), in the diet of chicks led to fatal bleeding. He opened a new approach to the study of pathologic bleeding. Investigation of a hemorrhagic disease in cattle caused by eating spoiled sweet clover had led to the demonstration of a low plasma prothrombin as an etiologic factor, presumably due to toxic effect upon the liver. Improvements in methods of determining plasma prothrombin were followed by observation of low plasma prothrombin in animals with experimental liver poisoning and biliary obstruction, in chicks with hemorrhagic diseases and vitamin K deficiency, and in patients with obstructive jaundice.

Another link was supplied in the chain by the experimental proof that fat-soluble vitamins were not absorbed from the intestine in the absence of bile salts. Practical application of these facts has led to successful treatment of prothrombin deficiency in patients with liver disease by means of extracts containing vitamin K. Much study has been

given to developing methods of assaying the vitamin K content of various animal and vegetable fats, but the method based on the protective or curative effect on chicks must still be used.

So much for a small part of the history of the development of the use of this principle from 1935 to January, 1938, when the first patient was treated for obstructive jaundice with hemorrhage. It was during this latter year that several clinics took up the work, and one clinic reported late in that year 26 cases treated with this method. Of the 26 reported, only 3 of the cases had hemorrhage following operation. Many of the reports of experiments with vitamin K on animals and humans covered in this paper are dated as late as January, 1939. Thus, you see the practical application of the work of Dam and several collaborators in this country has only recently been applied.

With these facts in mind, the following is a presentation of 3 cases of obstructive jaundice.

Case Reports

Case 1—A woman, aged 47, in 1935 had her first digestive symptoms, consisting of upper abdominal pain and indigestion, that gradually grew worse. This course lasted for two years. She consulted a physician in another city in 1937, and in that year a cholecystectomy was done. After the operation she had one episode of acute pleurisy in the right side of the chest. Other than that she made a good recovery and was in good health for several months. However, two years later she developed intermittent jaundice, again had pain in the epigastrium and, finally, bleeding from the vagina. She came to the University Hospital on March 22, 1939. At this time the patient appeared quite frail, suffering from chills, fever, epigastric pain, and pain in the back. She had lost 10 pounds. Her hemoglobin was down to 42 per cent, red cell count, 1,850,000, polymorphonuclears 63, lymphocytes, 28 per cent, eosinophils, 10 per cent, basophils, 1 per cent, and icteric index, 75.

Studies were done and observations made, and it was felt that this woman had a common duct obstruction, although the chills and fever and some enlargement of the liver made one suspicious of a cholangitis.

A nine-day preoperative preparation was carried on during which two transfusions, liver extracts, ferrous sulfate by mouth, and high carbohydrate diet were given. Blood studies the

suffer from an occupational allergy. Feathers is a common causative agent (also among upholsterers). Recently, one of us (L. S.) came across a case of asthma in a butcher who suffered from asthmatic attacks every Thursday and Friday. Coincidentally, these were the days on which he handled chickens that were brought in for sale over the weekend. He gave marked skin reaction to feathers and was improved by treatment. Brown²² discusses 3 cases of asthma caused by chicken feed (active ingredient linseed meal) in poultry dealers. Nicholson,²³ testing 158 patients, found 44 per cent sensitive to flax and linen.

Pharmacists and Chemists—Attacks of asthma and vasomotor rhinitis may be had by pharmacists and chemists when in contact with certain drugs or chemicals that they inhale in their occupations. Of these the most common, according to Peshkin,²⁴ are ipecac, caroid, rhubarb, and lycopodium. In laboratory workers, urease, peptone, podophyllin, vanilla and castor-bean dust (Figley and Elrod²⁵) are known to bring on symptoms in the hypersensitive individual.

Woodworkers—Woodworkers frequently become hypersensitive to the particular type of wood with which they come in contact. Gade²⁶ found that 74 out of 100 woodworkers died with complications of the upper part of the respiratory tract. He examined 20 woodworkers and found 14 had symptoms of upper respiratory nature. Of these 14, 7 had asthma. Unfortunately, no skin tests were done. Bahn²⁷ states that intracutaneous tests in these patients are usually positive with an extract of the particular wood that causes their symptoms. They believe that "desensitization" does not give satisfactory results.

Upholsterers—Upholsterers work with a great variety of allergenic materials. It is, therefore, not surprising that these people have a relatively high incidence of allergic manifestations. In furniture-stuffing the common materials used are feathers, cotton, animal hair (horse, rabbit, and goat), wood shavings, vegetable fiber (kapok, cotton, etc.). Careful history-taking is of great importance in these cases so that some attempt be made to discover the causes of the patient's trouble before skin tests are performed. Since most of the allergens used in the upholstery industry are so common and varied, it is practically

impossible to remove oneself from their contact. Hyposensitization should, therefore, always be attempted in these cases.

Conclusions

1 A list of industries is given which are capable of inducing asthma and vasomotor rhinitis in certain predisposed individuals.

2 The diagnosis in most of these cases is not difficult but extremely important.

3 Many of these patients can be tested by the intradermal method.

4 Intradermal tests should be performed with the utmost caution when testing an allergic individual with a chemical or drug.

5 The ideal treatment in most of the industrial allergies is in the removal of the offending cause.

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SLIGHT HANDICAP

"I wish the boys wouldn't call me Big Bill"
"Why?"

"These college names stick
ing to be a doctor"
—Kablegram

bladder was large but essentially negative. A cholecystogastrostomy was done. Although this man had no hemorrhage before or after operation he was given 1 vitamin K capsule and ox bile, 10 grains, three times a day, until discharged from the hospital on December 13, 1939.

Is it not fortunate that science has evolved so many procedures to safeguard the lives of patients, both in medicine and surgery? Bleeding and clotting time were done in all the cases reported above. However, these tests are not a proper safeguard. They are not accurate and do not give the true picture. In obstructive jaundice the prothrombin test should be done on all cases for surgical control and safety. The quick test, so-called, is now being quite universally developed and is the one mentioned in the third case quoted in this paper. The majority of obstructive jaundice patients have a prolonged prothrombin time, and this is particularly so where liver damage is found, since bile is not getting into the intestinal tract and is much like a bile fistula.

At the present time there are two kinds of preparations on the market. One is vitamin K capsules (in oil), containing 1,000 units, and the dose is 1, 2, or 3 capsules daily until the prothrombin test has been materially reduced. The ox bile is the ordinary commercial ox bile, which is soluble in normal saline and can be obtained as such. At the present time the only intraduodenal preparation is called "Klotogen." It is liquid and is given in 2- to 8-cc doses or 10,000 units at a time intraduodenally. In a short time, the pharmacist informs me, there will be a new synthetic preparation of vitamin K on the market which will be much easier to handle.*

* Vitamin K for medical and surgical use is now easily obtained. This is (a Council-designated trade name) Menadiolone (2-methyl-1,4-naphthoquinone) in ampules 0.5 and 1 cc containing 10 and 32 mg vitamin K respectively.

Clinically, for treatment purposes, obstructive jaundice may be divided into two classes, i.e., those without hemorrhage, which may be treated by mouth with vitamin K and bile, and those with prolonged prothrombin tests or with hemorrhage, which should only be treated by the intraduodenal method. In all cases where the blood count is down, transfusions must be given. Mouth dosage and intraduodenal methods are the most reliable. Vitamin K in oil given by hypodermic is not as reliable and takes too long to be absorbed. It is likewise said not to be as pure as it should be for this purpose. Another interesting point regarding transfusions has come out in this procedure—transfusion should be made with fresh blood from a donor. Blood from a blood bank, because of its decreased prothrombin content, is not advisable.

Conclusion

As vitamin K is inexpensive, it is probable that it will be used routinely in patients with obstructive jaundice, both before and after surgery, even though no prothrombin deficiency is found. By this means the frequency with which indications for transfusions arise may be reduced.

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THE WIFE OF THE MAN WHO WAS NOT THERE

Oh, for the life
Of a doctor's wife!
It's a wonderful life, its fine!
You struggle to fix
His dinner by six,
And he doesn't get home till nine.

You play the host,
You carve the roast
And pray he'll return from his call
He's invariably late
To a play or a date—
Or he doesn't turn up at all.

Oh, for the life
Of a doctor's wife!
It's a wonderful life, I've found
Your finger gets cut,
And it's falling off, but
You can't find a doctor around.

So pity the spouse
Of the doctor's house!
The spouse of the house sublime,
For, though she is wed,
It may truly be said
She is husbandless most of the time
—Juliet B. Furman, N.Y., in JAMA

day before operation showed the hemoglobin to be 77 per cent, the red cell count, 3,760,000, the bleeding time, three minutes, and the clotting time, four and one-half minutes. Knowing something about vitamin K, we finally succeeded in obtaining some for postoperative treatment, especially for intraduodenal use.

On April 1, 1939, an exploration of the common bile duct was found without obstruction, the pancreas was normal, but the liver was badly damaged. A T tube was inserted in the common bile duct and the abdomen was closed. This patient progressed normally with her postoperative course until the fifth day, when vaginal bleeding started again and the wound dressing became saturated with blood. The patient complained of tasting blood in her mouth, and there was a thin trickle of blood from the common bile duct drain. Immediately we prepared to use vitamin K and bile. A preparation called Klotogen, 8 cc with 2 Gm of bile salts dissolved in 200 cc of saline, was injected intraduodenally. This was immediately followed by a transfusion of 500 cc of citrated blood. Each day thereafter, the same amount of Klotogen (vitamin K) and bile was instilled into the duodenum until the fourteenth postoperative day. Transfusions were repeated on the tenth and twelfth days, and on the tenth day the patient felt much improved, sitting up in bed and taking a fairly abundant diet. On the fourteenth day the last bleeding was seen on the dressings, from the drainage tube, and from the vagina. An increased amount of bile was obtained from the tube, and the common bile duct was injected with lipiodol, x-rayed, and found to be unobstructed. On the twenty-fifth day the patient got out of bed, was eating well, and had no hemorrhage, and on the thirty-ninth day she was sent home.

Case 2—This case came in two months after the first one, and we approached it with a feeling of much greater confidence. In September, 1938, an obese woman aged 40, weighing 230 pounds, came to the hospital with every symptom of gallbladder disease. She was worked up carefully and a cholecystectomy was done at this time. The gallbladder and common duct were so closely associated that an injury was done to the common bile duct necessitating an anastomosis with the duodenum. She made an uneventful recovery and went home about the third week. She remained well until March of the following year when her skin began to itch and she became a little jaundiced. She returned to the hospital on May 14, 1939, for examination. It was felt that she had a mechanical obstruction of the bile duct and that this would have to be relieved. Her jaundice was deepening, her stool was clay colored. The laboratory examination showed 12 Gm of hemoglobin, 3,900,000 red cells, 7,500 white cells, 63 per cent polymorphonuclears and 30 per cent lymphocytes. Her icteric index was 75, bleeding time,

four minutes, and clotting time, eight minutes.

The period of preoperative preparation lasted four days and consisted of a high carbohydrate diet, 15 Gm ox bile three times a day, and one blood transfusion. An exploratory operation revealed the common duct completely shut off from the duodenum. Obstruction was relieved, and reanastomosis to the duodenum was done. The liver appeared to be normal, and a T tube was put into the common bile duct and into the duodenum. In the afternoon of the first postoperative day, 1 vitamin K capsule and 10 grains of ox bile were given three times a day by mouth and continued daily for twenty-one days. A day or two after the operation we were obtaining from 500 to 850 cc of bile drainage, and it was decided to use a portion of this bile for treatment. For each of the four succeeding days, 350 cc was instilled in the duodenum. Bright red blood was seen on the dressings on the second day after the operation. The dressings were partially saturated each day until the tenth postoperative day when bleeding ceased. One 500 cc of citrate transfusion was given, the common bile duct was x-rayed with the aid of lipiodol and found patent.

The patient was discharged on the twenty-ninth postoperative day with the T tube still in place and draining a fair amount of bile.

Case 3—A man, aged 55, was admitted to the University Hospital on October 16, 1939. His history revealed constipation for six weeks, excessive use of alcohol, and five weeks of jaundice, with badly itching skin, epigastric pain, occasional vomiting, clay-colored stools, and the loss of 41 pounds in weight. There was no definite history of gallbladder pathology. The liver was large and tender. A blood count showed 11 Gm of hemoglobin, 4,400,000 red cells, 11,200 white cells, 77 per cent polymorphonuclears, and 20 per cent lymphocytes. There was no change in the red cells. The urine was essentially negative except for a positive bile test and a few red and white blood cells. The icteric index was 100, bleeding time, two minutes, and clotting time, eight minutes. This man was given a preoperative preparation consisting of 1 vitamin K capsule, with 10 grains of ox bile by mouth three times daily. On November 3, after some treatment with the ox bile and vitamin K, his prothrombin test by the quick method was thirty seconds and his control was 40 (normal 22 to 25). (This by the way is the first time we have seen a prothrombin test of any kind, and this was worked up by one of our interns at University Hospital.) On November 8 his prothrombin test was still thirty-five seconds, the control was 20, and the coagulation time was nine and one-half minutes. Preoperative treatment was continued until November 28, almost twenty-five days, when an exploratory operation was done and a mass was found in the head of the pancreas. The gall-

day From three to ten injections are used, depending upon the need Others have recommended larger doses and shorter intervals between treatments

In 1935 A. L. Brown⁴ advanced the concept that protein injections produce their effect by a nonspecific "interfering" action of the specific antiprotein immune substances He pointed out that both specific and nonspecific antibodies were produced by foreign protein injections

Other foreign proteins have been used, such as diphtheria antitoxin and filtrates of pathogenic organisms Foreign proteins should not be used if the patient's general condition is poor because of fever, heart disease, or low vitality (Noe⁵ and Newton⁶)

Everyone is familiar with the sodium salicylate treatment as recommended by Gifford⁷—up to 1 gram of sodium salicylate per pound of body weight daily Large doses of salicylates by mouth are tolerated when given mixed with effervescent alkaline salts Pilocarpine sweats, combined with mercury rubs and iodides, have also been recommended Iodides alone in the later stages of subacute uveitis are valuable in hastening the absorption of the vitreous opacities

After the acute symptoms of uveitis have subsided, if the etiology is found to be syphilis, tuberculosis, or brucellosis, specific therapy should be started

The diagnosis of uveitis due to tuberculosis is not easy It must be made on the basis of clinical observations, and not on the basis of the tuberculin skin test, which may be negative Adler⁸ states that miliary tubercles with little inflammatory reaction may be seen in the iris by slit-lamp examination and in the choroid if the metastasis occurs shortly after the primary lesion has developed and before allergy is developed This may be found in young people of from 10 to 25 years of age Between 25 to 35 years of age the tubercular iritis is more inflammatory, synechiae form, and sclerosing keratitis may develop In the choroid, large greenish gray lesions, usually single and in the periphery, may be seen. The vitreous humor is hazy and the skin sensitivity is often high

Patients from 30 to 50 show ciliary body involvement as well as iritis, and the process is highly exudative Mutton-fat deposits on the cornea are characteristic The skin reaction is usually positive

The treatment is that for general tuberculosis—fresh air, rest, high caloric diet, etc Brown⁹ believes that this is the most important measure Sodium gold thiosulfate has been

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The specific treatment is tuberculin, which should be used in the allergic type of case but not in the tuberculosis-infected lesion in which it may produce injury (Eggston¹⁰) The initial dose should be one-tenth of the dose required to give a skin reaction.

The perifocal theory of tuberculin therapy regards allergy as responsible for local immunity and attempts to create local immunity by use of tuberculin Inactivity of the lesion is interpreted as attainment of local immunity, and the therapy is then stopped Blinded, phthisical eyes often result from this therapy

The desensitization concept sponsored by Woods¹¹ is based on the fact that allergy and immunity are unrelated Tuberculin is used for long periods, and the dose is steadily increased during periods of remission to maintain the desensitization Patients extremely sensitive to tuberculin must be treated cautiously with small amounts, being careful not to produce a local reaction. It may be necessary to start with 0.000,001 mg or less The tuberculin therapy is discontinued only if the skin tests become almost totally nonreactive and the ocular lesion has remained nonreactive for a year or more Woods says that paracentesis causes an amazing improvement in these cases He also advocates the use of beta radium rays, which penetrate only 2 or 3 mm

Since these rays are obtained from radon, which is not available in Rochester, I have recently been using the superficial radiation from a new small therapeutic x-ray machine* whose rays approximate beta radiation in depth of penetration. A marked reduction in corneal vascularization results I have not yet determined the effect on lesions of the iris and ciliary body

Undulant fever (Malta fever) or brucellosis may be a cause of chronic uveitis Green¹² called attention to this in his paper before the American Ophthalmological Society in 1938 The disease is more widespread than is generally realized

The blood agglutination test for brucellosis is of value only when positive It is negative in 90 per cent of the chronic cases The skin test with intradermal injection of killed bacillary suspension gives a positive reaction in twenty-four hours, which may last three days or more and is often quite severe An opsonocytophagc test is reported by Dr Green

*Picker portable x-ray machine with a capacity of 15 milliamperes and 50 kilovolts. We have used 40 kilovolts without a screen.

THE TREATMENT OF UVEITIS

JOHN F. GIPNER, M.D., Rochester, New York

THE treatment of uveitis varies with the chronicity of the disease process. Acute uveitis requires active vigorous treatment, first, to prevent posterior iris synechia and second, to reduce the inflammation as quickly as possible in order to prevent serious permanent damage to the ocular tissues. In the chronic forms the immediate danger of lasting injury to the ocular tissues is not present and adequate time is available for a thorough and complete search for the cause.

In acute uveitis, early dilatation of the pupil can be accomplished by the use of drugs that stimulate the iris dilator fibers in conjunction with the use of 2 per cent atropine ointment. Cocaine may be employed or 1 to 1,000 epinephrine chloride solution may be used on a cotton pledget placed under the lids, or 2 to 3 minims may be injected subconjunctively. Two per cent epinephrine bitartrate or levoglucosan may also be used. Dionin is said to promote absorption and increase the activity of atropine. Leeches have been generally abandoned yet they may still be of value in relieving severe, painful iritis.

After the steps to dilate the pupil have been taken, the use of local heat is the next most important local treatment. This may be applied by hot compresses, the altherm, dry heat or medical diathermy.

In a small number of acute anterior uveitis cases there is an increase in the intraocular tension. Occasionally, it can only be differentiated from primary glaucoma by the use of the slit lamp to determine the condition of the aqueous humor. Epinephrine should first be tried and, if it fails to control the pressure, paracentesis of the anterior chamber may be performed. If the pressure stays up for weeks in spite of these measures, an iridectomy should be done. This is usually followed by a severe reaction. Nevertheless, the results are better than those following cyclodialysis, and filtering operations close up with scar tissue.

The cause of acute uveitis should be found within the first two days if possible. The blood for the Wassermann and Kahn tests should be taken before protein therapy is started. The tuberculin and brucellosis skin tests should be done as soon as practi-

cable. If gelatinous iritis is present and the urologist finds genitourinary gonorrhea, artificial fever treatment, properly tuned to outlast the thermal death time of the strain of gonococcus found, offers the best results. If this therapy is not available, then foreign protein therapy and prostatic massage is the next best treatment. Gayton¹ found that sulfanilamide, which works especially well in the treatment of acute gonorrheal urethritis, is of little value in the treatment of gonorrheal uveitis. Sulfanilamide has also proved unsatisfactory in other forms of uveitis.

If obvious infection of teeth, tonsils, or accessory nasal sinuses is present, I prefer immediate eradication of the foci if this is practicable, anticipating improvement in the eye following whatever general and focal reaction may take place. I have never seen any unfavorable focal reactions, although I know that they have been reported (Berens²). If improvement fails to appear, then foreign protein therapy is started. Others prefer to start foreign protein therapy immediately, before eradicating the foci of infection.

If chronic nonspecific prostatitis alone is found, foreign protein therapy and prostatic massage are prescribed. If chronic cervicitis alone is found, foreign protein therapy and subsequent autogenous vaccine therapy are given. Autogenous vaccine may be made from cultures taken from any focus of infection (Berens²).

Formerly, it was generally believed that the production of shock was necessary for the efficient employment of foreign protein therapy. The height of the fever produced and the increased leukocytosis were regarded as indications of the effectiveness of the treatment. The milder foreign proteins, milk, and proteins of milk were supplanted by the more positive reaction-producing agent—intravenous typhoid vaccine.

The initial dose of intravenous typhoid vaccine varies from 25,000,000 to 60,000,000 killed bacilli. For safety, an intradermal skin test is first given and, if no reaction takes place within thirty minutes, the intravenous injection is given. The dose of subsequent injections is increased as is indicated by the reaction produced. The second injection is given after the temperature has returned to normal, which is usually the second or third

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The treatment of brucellosis consists of sulfanilamide for the acute cases, prolonged artificial fever therapy, a serum for the acute and a vaccine for the chronic cases

In chronic uveitis there is not the need for haste as in acute uveitis, especially of the anterior type. Mydriatics should be used if there is local congestion or if there is a tendency to form posterior adhesions. If atropine sensitization occurs, duboisine $\frac{1}{1}$ to 1 per cent, hyoscine hydrobromide 1 per cent, or scopolamine 1 per cent may be used.

Cataract develops frequently in chronic uveitis, and little can be done to retard the development. A balanced diet with supplementary doses of vitamins B and C may help. Operation for cataract should be avoided for at least a year after the uveitis has quieted down, as determined by the cell content of the aqueous humor.

Of the rarer forms of uveitis, uveoparotitis, and uveitis with associated alopecia, poliosis, vitiligo, and deafness are mentioned. Their treatment is the same as for other forms of uveitis.

Summary

1. Acute uveitis requires active vigorous treatment to prevent posterior synechia and to reduce the intraocular inflammation.

2. Foreign protein therapy is the most valuable therapeutic measure in acute uveitis. The method of "shock" therapy and the Brown method based on the immune bodies "interfering" action, combined with anterior chamber drainage, are mentioned.

3. Various treatments for nonspecific uveitis are given.

4. The specific therapy of uveal tuberculosis, syphilis, and brucellosis is outlined.

5. The treatment of glaucoma, which may complicate both acute and chronic uveitis, is mentioned.

6. A secondary cataract complicating chronic uveitis should not be operated upon until the eye has remained quiet for one year.

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Discussion

Dr Conrad Berens, New York City—Dr Gipner's paper is most important from the standpoint of the prevention of blindness, because, if the treatment of chronic uveitis was more specific, much of the unnecessary blindness occurring in adults would be eliminated.

I am glad that Dr Gipner spoke of subconjunctival injections of epinephrine, for I have found them most efficacious, especially when combined with $\frac{1}{100}$ grain of atropine. This method of treatment has often been successful when other methods have failed. In producing dilatation I have also found that the combined use of several cycloplegics seems to be effective. Sometimes the insertion of a row of homatropine and cocaine disks ($\frac{1}{100}$ grain each), at the same time that atropine and hyoscine are used locally, is useful. The use of a local anesthetic seems to enhance the action of these drugs.

I have found infrared rays useful in relieving pain in acute inflammations of the uveal tract, whereas diathermy sometimes seems to be contraindicated. Thermolite seems to be as efficacious as diathermy.

The management of these cases when tension is high is important, in my hands the use of 1 per cent homatropine and 1 per cent cocaine alternated with the use of weak solutions of pilocarpine sometimes controls the tension. Since using aspiration, instead of paracentesis, which does not frighten the patient so much as the thought of an operation (because we say we are only giving a hypodermic injection), I have been more satisfied with the management of hypertension in the presence of uveitis. If it becomes necessary to perform an iridectomy, I usually excise a small piece of sclera with a scleral punch, in spite of the fact that the wound usually heals, for in some cases prolonged filtration has been obtained.

I have also found artificial fever therapy of value if the gonococcus is present, and I believe sulfanilamide may also be used. It was apparently beneficial in 2 patients with chronic uveitis, suspected of being caused by prostatic gonorrheal infection. If the findings of Van Slyke and Mahoney¹ are accurate, sulfanilamide should be more valuable after a certain amount of natural immunity to the gonococcus has been developed.

The question of chemotherapy with sulfanilamide has been broached, and from our experimental work it would seem as though staphylococci also might produce uveitis. Therefore, we would have to consider sulfathiazole for the

¹ Van Slyke C. J., and Mahoney J. F. New York State J. Med. 40: 122 (1940).

treatment of these cases I used sulfathiazole in the treatment of 1 patient and obtained a severe general reaction without much improvement in the local condition. Likewise, I have been disappointed in the use of sulfanilamide in patients with chronic uveitis, supposedly caused by chronic sinusitis associated with streptococci and staphylococci infections, even when hemolytic streptococci were present. We realize that these drugs are bacteriostatic rather than bactericidal, and I believe that we should combine our treatment with immunologic therapy, since this combined treatment has apparently been shown by Fleming² to be more efficacious than immunotherapy or chemotherapy alone. I have also used neoprontosil subconjunctivally in these cases, but the evidence of the effectiveness of the treatment is inconclusive. Moreover, from what we know of this drug, one would not expect it to be effective unless it first reached the blood stream.

The question of the immediate elimination of foci of infection is an important one, and so long as there is improvement in acute inflammations I usually prefer to postpone radical elimination of these infections. I have observed not only severe acute exacerbations of the eye inflammation but also severe heart lesions in 2 patients. This opinion is in accord with that of Illingworth³ in removing tonsils in nephritis. However, I have apparently seen rapid recovery of acute uveal inflammation following the removal of a tooth.

Dr Gipner raised the question of the use of autogenous vaccines and toxic antigens. We usually use autogenous toxic antigens and, in addition to antigens prepared from staphylococci and streptococci, we have recently found that 30 per cent of our patients with serious involvement of the uveal tract have had coliform bacilli in the upper part of the respiratory tract. Attempts to immunize rabbits against coliform bacilli apparently were successful. The immunity produced may be only partial in some rabbits and transitory in other rabbits. Some of our patients with chronic eye lesions apparently have been benefited by desensitizing doses of these toxic antigens, used over a long period of time in small doses similar to those used in tuberculin therapy. We found that with these bacteria acute iridocyclitis can be produced in rabbits with one-tenth the dose of bacteria required to produce iritis with iritis-producing streptococci.

For many years I have advocated the use of typhoid vaccine in preference to other forms of nonspecific protein therapy, and I believe that it is one of our best nonspecific methods of treating acute eye lesions. The danger of serious compli-

cations, even death, should not be overlooked, especially when using intravenous injections. It seems to me that a safer method is to administer the typhoid vaccine subcutaneously rather than intravenously. I have used Brown's method of employing typhoid H antigen and still am not sure whether nonspecific treatment enhances the curative effect of simple aspiration or paracentesis.

Concerning the treatment of tuberculosis of the uveal tract, I long ago pointed out⁴ that possibly ophthalmologists were relying too much on the virtues of immunology and had paid too little attention to mental and physical rest and to the use of natural and artificial sunlight as therapeutic aids. If tuberculin treatment is to be given, especially if the lesions are close to the macula, I believe that it should be instituted without an intradermal test, using a minute dose because I know of four eyes that became blind after merely testing the patient with tuberculin. In treatment, the dose that Dr Gipner prefers is one-tenth of the amount used to produce the skin reaction. In recent years I have used a Vollmer patch test which seems to be about as sensitive as the intradermal test with the weaker purified protein derivative. The desensitization concept of treatment, originally sponsored by Wilmer,⁵ is the one that I favor not only for the use of tuberculin but also for the use of toxic antigens of other bacteria. In the treatment of tuberculosis of the eye my results have apparently been better with the use of bacillus emulsion.

I am most interested in Dr Gipner's remarks concerning the use of beta rays but have had no experience with them.

Concerning the removal of cataracts in this group of patients, I think that ordinarily it is well to wait for a year following the subsidence of signs of inflammation as seen with the slit lamp, but sometimes these eyes exhibit slight postoperative inflammation. Even though the eyes do not appear unusually congested, a 1 per cent solution of holocain should be instilled into the conjunctival sac of each eye and the reaction compared.

We have made skin tests with *Brucella abortus* antigen in 39 patients who had inflammatory eye lesions, the majority of which involved the uveal tract. A positive reaction was obtained in 1 patient with choroiditis. Agglutinations with Br abortus in 43 patients and with Br melitensis in 5 patients were negative. Our ideas are in accord with Dr Gipner's concept of diagnosis and treatment, but, since raw milk is used upstate and not in New York City, this probably accounts for the low incidence of uveitis from this cause which our findings seem to indicate.

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Case Reports

BILATERAL ABDUCENS PALSY FOLLOWING LUMBAR PUNCTURE

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REACTIONS following spinal punctures are well known. Davenport¹ recently reported an incidence of 32.8 per cent moderate or severe reactions following lumbar punctures performed in the Board of Health clinics of New York City. The usual symptoms include headache, nausea, vomiting, and dizziness, and they may last from one to twenty-one days. Rarely, more serious accidents have been reported. These have been chiefly palsies of the extraocular muscles, most frequently the sixth nerve. Not more than 100 such cases have been reported in the literature and most of them have followed spinal anesthesia. Bilateral involvement of cranial nerves is rare, and so far as we know not a single case of bilateral abducens palsy following a simple diagnostic spinal puncture has been reported. Therefore, we believe that the following case is of unusual interest.

Case Report

A 36-year-old white man, born in Greece, was admitted to Bellevue Hospital on January 22, 1940. He gave a history of having had a penile sore in 1922 which was not treated. In 1929, following a positive blood Wassermann reaction, he received twelve hip and six arm injections from a private physician. From 1932 to 1933 he had irregular treatment for syphilis at a New York City Board of Health clinic. During this time he received eighty-eight bismuth and thirty-eight arsenamine injections. His blood Wassermann reaction was always strongly positive. In July, 1937, the first spinal puncture was performed. Following this he had severe headaches and was bedridden for four days. At that time his physical examination revealed no neurologic abnormalities. His spinal fluid Wassermann reaction was 1 plus. No cell count was recorded, but the Pandy test was reported as 1 plus and the Colloidal Gold curve as negative. For six months prior to his admission to Bellevue Hospital he had been receiving irregular treatment with mercury, the last injection having been given two months before entering the hospital. On January 9, 1940, at 1:00 P.M., a second lumbar puncture was done at one of the New York City Board of Health clinics. The report of the spinal fluid withdrawn at that time was as follows: Wassermann, 2 plus; Pandy, 1 plus; Colloidal Gold negative. No cell count was done. At 11:00 P.M. on the day of his spinal puncture he became nauseated and had a severe headache. He remained in bed for the next few days but in spite of this began to vomit on the third day after the tap. He had no fever or bladder disturb-

ances. On January 16, one week following the tap, he noticed double vision. He also complained of dizziness at this time although his headache was less severe. On the following day, January 17, he returned to the Board of Health clinic because of his diplopia. There the bilateral abducens palsy was diagnosed, and he was referred to Bellevue Hospital on January 22. A physical examination revealed no abnormal neurologic findings except the bilateral sixth nerve paralysis. The pupils were round and equal and reacted promptly to light. All tendon reflexes were present and equal. There were no signs of meningeal irritation or of pyramidal tract involvement and no sensory disturbances, including vibratory sense. On January 23 a cisternal puncture was done with the withdrawal of about 10 cc of clear spinal fluid. The Wassermann reaction of the fluid was reported as 4 plus in 1 cc., 4 plus in 0.5 cc., and negative in 0.1 cc dilutions. The Pandy test was negative as was the Colloidal Gold curve, and no cells were found. Following the cisternal puncture the patient stated that his headache, which had been steadily improving, disappeared entirely, and his only complaint was diplopia. Examination by an ophthalmologist on January 31 showed that the right eye could move 2 mm beyond the midline, whereas the left eye showed an inward deviation of 1 mm. On February 29 an examination revealed a lateral movement of the right eye of 6 mm as opposed to the normal 10 mm. The left eye showed a lateral movement of only 3 mm. Complete recovery had occurred by April 4.

Comment

The fact that the patient had syphilis must be considered before suggesting that the lumbar puncture was responsible for his bilateral abducens palsy. It is well known that syphilis can cause extraocular palsies. Uthoff² has recorded 27 cases of unilateral and 6 cases of bilateral sixth nerve palsies due to neurosyphilis, but the assumption that our case can be explained on this basis does not seem justifiable because there were no other neurologic signs of meningovascular syphilis, either subjective or objective, and the spinal fluid, though showing a moderately positive Wassermann reaction, had no other evidences of activity. Furthermore, there was a spontaneous recovery, as occurred in most of the cases reported following spinal taps. Consequently, it is logical to assume that the spinal puncture was responsible for the temporary palsy in this case. In explaining the mechanism that finally leads to such serious consequences, we have to consider the following facts that are known to be associated with reactions following spinal taps:

1. Headaches following lumbar punctures

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occur more frequently in individuals who have a normal spinal fluid than in those whose fluids indicate some pathologic processes in the central nervous system. This difference is striking from the statistics given by Davenport. There are, however, individuals who are peculiarly intolerant to spinal taps, e.g., neuropathics and cases of multiple sclerosis.

2 The headaches seem to be increased in severity by withdrawing large amounts of spinal fluid.

3 Most reactions have an incubation period of at least some hours and occasionally as long as two days.

4 They can be relieved by the horizontal position.

5 They are rare following cisternal punctures.

Neither the theory of meningeal irritation or spinal fluid leakage are in themselves satisfactory explanations of these facts. A meningismus alone cannot explain why the headaches are less severe when the patient is in a horizontal position, nor can it explain the absence of headaches following cisternal puncture or the fact that the severity of headaches seems to be influenced by the amount of spinal fluid withdrawn. Nevertheless, it is a known fact that a sterile meningitis, characterized by an increased cell count, may occur following both lumbar and cisternal punctures. Such cases have been frequently reported in the literature, recently by Hurxthal³ and by Reynolds and Wilson,⁴ and they have been observed by us on numerous occasions. The fact that reactions after spinal taps occur less frequently when some meningeal pathology is already present seems to favor the theory that meningeal irritation may account for some of the symptoms. The observation that many fewer reactions are encountered following punctures with thin needles than when ordinary sized needles are used can be offered in support of both the meningismus and leakage theories, but it does not explain in any way the absence of reactions following cisternal punctures, if the former theory is accepted.

On the other hand, the leakage theory cannot satisfactorily explain occasional reactions following dry taps or the use of fine needles. But even though leakage occurs, to explain the headaches we must assume that large amounts of spinal fluid are lost. There is no proof that this occurs or that the leakage lasts long enough to account for the incubation period, which may be of even two days' duration. But in favor of this theory is the undeniable fact that reactions following cisternal punctures are extremely rare. This is best explained by the fact that in the upright position there is a negative pressure in the cisterna magna whereas there is an increased pressure in the lumbar region.

Thus, while neither meningeal irritation nor leakage of spinal fluid can satisfactorily explain reactions to lumbar punctures, both factors may

be present and neither can be dismissed entirely. It is probable that both help to produce changes in the hydrodynamics of the central nervous system and that reflex responses of the vasomotor system have an important part in effecting such alterations. This can account for the period of latency in symptoms following spinal taps. We know that individuals vary in their symptomatic response to alterations in intracranial pressure, and it is reasonable to believe that the hydrodynamic changes following spinal taps vary in onset, duration, and intensity in different individuals. In some cases there may actually be an edema of the meninges or brain itself which brings pressure on vulnerable structures at the base of the brain.

That the sixth nerve should be the chief sufferer in such reactions is not surprising, because the frequent incidence of abducens palsies in comparison with other cranial nerves is not confined to accidents following spinal taps. They have been noted in toxic, infectious, and mechanical injuries to the central nervous system, e.g., spinal anesthesia, botulism, diabetes mellitus, suppurative and nonsuppurative infections of the meninges, vascular lesions, neoplasms, and trauma. This peculiar vulnerability of the sixth nerve is due to its anatomic position.⁷ It has a long and devious course, part of which is situated within Dorello's canal, which is frequently anomalous and varies in size and length. Furthermore, the nerve lies close to the dura throughout much of its course and is subject to pressure from all types of meningeal pathology or increased intracranial pressure. The majority of abducens palsies reported are found in the Italian literature. This may possibly be explained by the more or less characteristic cranial structure of the Mediterranean peoples. It is also noteworthy that the left abducens nerve is much more frequently involved than the right. In our case, both nerves were affected but the right improved more rapidly.

In taking all of the foregoing factors into consideration, the accident to the abducens nerves in our patient is best explained as part of his reaction to the lumbar puncture. To account for the interval of seven days between the spinal tap and onset of paralysis, we must postulate an increasing pressure on both nerves, but this is a reasonable deduction from our knowledge of lumbar puncture reactions in general.

Two other possibilities may be mentioned in explanation of the phenomena described. The first is that of a latent virus infection activated by the trauma of spinal puncture. This is pure speculation and has nothing in its support beyond the fact that the central nervous system seems to be subject to virus diseases that are still obscure and that do not necessarily cause a pleocytosis. The second is the possibility that there was a hemorrhage in the nuclei of both nerves. Quincke,⁸ who first performed spinal punctures, reported such autopsy findings in the region of the

nuclei of the third and sixth nerves following spinal tap in 1 case. Since Boehne⁶ has shown that the nuclei of the sixth nerves are supplied by two small arteries, known as the arteriae mediae, which arise from the basilar artery, a vascular lesion might account for the palsies in this case. But in the absence of any damage to closely adjacent structures such as the parabrachial or facial nuclei and facial nerve fibers, this seems most improbable. Therefore, the best explanation is a bilateral nerve trunk injury due to changes following lumbar puncture.

Summary

1. A seropositive syphilitic patient in the late stages of the disease, with an inactive spinal fluid

except for a mildly positive Wassermann reaction, develops a bilateral abducens palsy on the seventh day following a diagnostic spinal tap with spontaneous recovery.

2. Various possible explanations for such an accident are discussed.

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DEATH FOLLOWING THE USE OF SODIUM IODIDE AND DIODRAST

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ON DECEMBER 21, 1939, C. R., a white man, aged 49, was admitted to the hospital with complaint of urgency and frequency of urination for six weeks. He was passing pus and blood in the urine, voiding every half hour.

The patient was nervous and uncooperative. Under gas anesthesia, a cystoscope was passed, but because of the markedly inflamed bladder the ureters could not be identified. The patient had a large diverticulum on the left side in the region of the left ureter. After washing out the bladder several times and freeing it of considerable pus, we discontinued the operation.

The next morning a catheter was inserted, and the bladder was filled with 12 per cent sodium iodide. Cystograms were taken which showed a large diverticulum almost the size of a grapefruit on the left side.

The bladder was then irrigated with distilled water. During the injection the patient complained of considerable pain in the bladder region. Thirty cubic centimeters of diodrast was injected intravenously, taking five minutes to inject.

The patient did not show any immediate reaction but still complained of pain in bladder region. Pyelograms showed a large left ureter about 1 inch in diameter and a hydronephrotic kidney on the left side.

One hour after being put to bed the patient became cold and clammy and still complained of pain in bladder region. Heat was applied, and morphine (1/4 grain) was given with slight relief. The patient vomited several times. By 4:00 P.M. the patient appeared to be in moderate shock and complained of excruciating pain in the bladder region with tenderness over the bladder. Fearing that he might have a ruptured diverticulum, I opened the lower abdomen over the bladder under local anesthetic and found the bladder and diverticulum intact with no leakage of diverticulum.

The patient continued in shock and died twenty-four hours after the dye had been given.

A complete autopsy was not obtained, though we were given permission to explore the pelvis. The bladder and diverticulum were removed intact. The mucous membrane of the bladder was much inflamed. The lining of the diverticulum was darkly colored, almost as though it had been painted with tincture of iodine.

There have been several deaths reported from time to time following the use of diodrast intravenously. In most of these cases symptoms of shock began immediately. The Mayo Clinic reports 25,000 intravenous diodrast injections without a death. Dr. E. J. Foley, of Winthrop Chemical Company, the manufacturer of diodrast, reports that this drug has been used three to five million times.

The diodrast used in this case was the 30 per cent solution, though Robb and Steinberg have used a 70 per cent solution in 456 cases—for taking pictures to show the chambers of the heart—without a single fatality.

It is difficult to say whether the sodium iodide injected into the bladder caused or contributed to this man's death or whether the diodrast injected directly into the circulation caused his death. The blood supply to a diverticulum is poor, so absorption from here should be slow. The bladder was immediately washed out, therefore, he did not absorb much from that source.

I believe that this man was allergic to iodides, although he did not give any definite history of such.

I believe patients should be questioned as to allergy before being given iodides in large amounts.

100 East 4th Street

SOFT TISSUE CALCIFICATION IN ACRODERMATITIS CHRONICA ATROPHICANS

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THE presence of calcification in the soft tissues in acrodermatitis chronica atrophicans has not as yet been reported. In reviewing the literature no reference to this has been made.

The following case has been studied and presented before several dermatologic groups, including the Brooklyn Dermatological Society, and the diagnosis of acrodermatitis chronica atrophicans was confirmed.

The most interesting and striking aspect of the case is the roentgenologic findings of the upper and lower extremities.

Fig 1 shows both lower extremities with diffuse and extensive, soft, tissue calcification. The deposits are irregularly shaped but have a tendency to be laid in linear fashion. Some nodules can be demonstrated. This calcification is situated in the skin and subcutaneous tissues rather than in the deeper structures such as the muscles. It extends from the lower third of the thighs to the ankles but is most marked from the knees down. The osseous structures are of normal character for the patient's age (70).

Fig 2 reveals several, small, calcified nodules in the subcutaneous tissue on the posteromesial aspect of the right elbow. The largest nodule is about 2 mm in diameter.

Radiographic examinations of other regions show similar deposits over the lateral borders of the greater trochanters. The skull and sella turcica are essentially negative. The hands disclose hypertrophic osteoarthritis. A tele-roentgenogram reveals exaggerated hilar markings and a tortuous aorta with calcified areas in the upper portions of the descending aorta.

Case Report

F B, a white woman, aged 70, housewife, Russian born, was admitted to the hospital on April 2, 1936, with a history of a complete right paralysis of the body for two years. Familial history was essentially negative.

Her dermatologic status dated back to the time of the birth of her second child forty years before. At that time she noticed that the skin of her lower extremities was rather dry. This was followed by redness of the skin and edema. This process slowly spread up the legs from the ankles to the hips. The swelling then gradually disappeared and left erythematous patches. Several years later the patient noticed diffuse, small, painless, hard nodules throughout the lower extremities, which slowly became larger but had, however, remained stationary in size for the past ten years.

The patient's main complaints were referable to the cardiac and circulatory systems and it

was for these reasons that she was admitted to the institution.

Physical examination at time of admission revealed a complete, right hemiplegia. Lung fields were negative. The heart was enlarged to the left and the sounds were irregular but of fair quality. The aortic second sound was accentuated and a pulse deficit was elicited. Her blood pressure was 142/90. The liver was enlarged to two fingers below the costal margin and was not tender.

The lower extremities from the hips down showed erythematous patches with associated cigarette, paperlike atrophy, edema, and telangiectasis. The anterior surfaces had infiltrative areas, sclerodermal-like in nature, which were surrounded by erythema and atrophy. The infiltrated patches were white, adherent to the skin and moved with it. Numerous, hard, shotlike nodules, movable in the subcutaneous tissue, were palpable from the ankles to the hips, but mostly in the upper two-thirds of the legs.

The right elbow on the ulnar surface possessed similar nodules, somewhat deep in the skin but, nevertheless, in the subcutaneous tissues. They, too, were hard and sharply demarcated.

During the patient's stay in the hospital over a period of four years, no definite clinical or roentgenologic changes were observed in her dermatologic condition. She did, however, experience several cardiac attacks and renal infections. In January, 1940, she made exitus on a vascular basis.

Laboratory examinations were essentially negative.

A necropsy of skin of the lower extremity disclosed the following microscopic examination—the epidermis was atrophic and consisted of two to four layers of cells. No distinct



FIG 1 Soft tissue calcification in acrodermatitis chronica atrophicans.



FIG 2 Soft tissue calcification in *acrodermatitis chronica atrophicans*

basal row was present. There was a moderately wide layer of surface keratin. The collagenous bundles of the corium had undergone degeneration to a marked degree and took the bluish stain. There was a minimal, lymphocytic infiltration with dilated but empty capillaries. There was edema of the entire corium and the subcutaneous fatty tissue was unchanged. No hair follicles were observed, but definable coil glands were present. Deep in the subcutaneous tissue were discrete, large masses of fibrous tissue, which in the central portion were being replaced

by calcific infiltrate. The larger arteries showed a nodular, subcutaneous thickening.

Summary

A report is made of the first case on record of *acrodermatitis chronica atrophicans* associated with soft tissue calcification, demonstrated in both the lower and upper extremities by roentgenologic studies and verified by necropsy and pathologic examinations.

90-10—149th Street

INFECTIOUS MONONUCLEOSIS

An Unusual Case

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ONE of the all-too common problems that the general practitioner meets in his everyday private practice, where extensive laboratory work is often a financial burden, is the unexplained fevers. One often sees these cases that one would like to hospitalize in order to remove them from the classification of "pyrexia of unknown etiology," or "ephemeral fever" but the financial burden is often too big for the family to bear.

This case is reported as an example of pathology in which a fairly common disease assumed so unusual a picture that it could not be diagnosed without some laboratory work, yet in which, at a minimal expense, the complete picture was revealed and the case report closed with a definite diagnosis.

Case Report

H. D., a white male youth, aged 21, was first seen on September 19, 1940, presenting as a chief complaint mild pain in the lower abdomen and a moderate fever (101 to 102 F) of five days' duration.

His past history was not remarkable. The usual childhood diseases had been encountered before the age of 5. He had had no medical treatment from this time until the present ill-

ness, except about five years ago when he had a contusion of the back.

The family history is irrelevant. There is no evidence of any familial diseases.

The present illness started five days before with a chilly sensation, nausea, malaise, and a temperature of 101 F by mouth. The abdominal pain that centered around the umbilicus, was mild and constant and bore no relationship to food. The symptoms persisted for four days more, with mild fluctuation of temperature up to 102 F accompanied by anorexia.

Physical examination revealed a moderately obese, young man, lying in bed apparently acutely ill. His temperature was 101.4 F by mouth, pulse, 88, and respirations, 22. The scalp and hair were normal, the ears were clear. The pupils reacted to light and accommodation. There was no discoloration of the conjunctiva. The mouth and throat were negative. There was no nuchal rigidity. Neither the thyroid nor any other glands of the neck were palpable. The heart sounds were of good quality and free of murmurs. The blood pressure was 118/71 in both arms. The lungs were clear throughout. The extremities revealed no abnormalities, no axillary or inguinal glands were felt.

The abdomen was somewhat difficult to examine because of the obesity of the patient.

The liver and spleen were not enlarged, no masses were felt. The gallbladder was not tender. At McBurney's point there was a slight degree of tenderness on deep pressure, but no muscle spasm was demonstrable. Rectal examination was negative.

Laboratory Examination—The urine was free of sugar, albumin, acetone, pus, or casts. The red blood cell count was normal. The white blood cell count cast the first ray of light on this otherwise negative picture. The total white cells numbered 6,700 with 36 per cent neutrophils, all of which were segmented. There were 58 per cent lymphocytes of which 16 per cent were large and 42 per cent small. There were 5 per cent monocytes and 1 per cent eosinophils. This picture was that of lymphocytosis, the cause of which was still in doubt. An aleukemic leukemia of the lymphocytic type had to be considered. Two days later the white count had increased to 10,500 with a further depression in the neutrophils to 20 per cent, of which 19 per cent were segmented and 1 per cent was of the band type. The lymphocytes had risen to 77 per cent, 63 per cent of which were small and 14 per cent large. No lymphoblasts were noted. Monocytes were 2 per cent and eosinophils 1 per cent. In spite of the fact that this was clinically not a case of infectious mononucleosis, a Paul and Bunnell test for heterophil antibodies was done and was strongly positive (4 plus) in a 1:256 dilution. The diagnosis, of course, was now obvious. As far as the literature will reveal there is no condition other than

infectious mononucleosis that will produce a strong heterophil antibody test.

The temperature fell by lysis. The abdominal pain gradually decreased and one week later the patient had completely recovered. However, at that time the white blood cells showed a count of 9,800 with still only 28 per cent neutrophils, all of which were segmented, and 60 per cent lymphocytes, of which 42 per cent were small, 17 per cent large, and 1 per cent lymphoblastic. The monocytes had increased to 9 per cent. Because of this blood picture the patient was re-examined. No liver, spleen, or lymph glands could be felt, though every possible site was examined.

Comment

This is undoubtedly a case of infectious mononucleosis but of such a negative picture that undoubtedly no accurate diagnosis could have been made without a white blood cell count and a heterophil antibody determination. All unexplained fevers, especially where there is a lymphocytosis, should have a heterophil determination done immediately whether or not the classic symptoms of lymphadenopathy and hepatic and splenic enlargement are present. Probably if this is done, the incidence of infectious mononucleosis would show an increase and unexplained fevers a decrease, since the patient runs a short febrile course and recovers promptly before much laboratory work can be done.

ADRENAL CORTEX CARCINOMA

Prevention of Postoperative Adrenal Insufficiency

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A STORMY and frequently fatal postoperative course has occurred in a majority of the reported cases of adrenal cortex tumors. An unusually calm convalescence warrants presentation of the following case and emphasizes the value of adequate therapy to prevent development of adrenal insufficiency.

Case Report

Miss B. K., a white, single woman aged 25, was admitted to the Jewish Memorial Hospital on the urologic service of Dr. A. J. Greenberger, December 21, 1938, with evidence of hirsutism, amenorrhea, and voice changes. There were no remarkable features in her family history or past history except for irregularity of menstruation at three to five-month intervals since the age of 15.

There had been no menses during the previous eighteen months. During the preceding year the patient had noted visual difficulties, seeing spots in front of her eyes. Her voice became deeper and hoarser. An acneiform rash spread rapidly over the face, shoulders, and back and was resistant to the usual hygienic measures. Shortly thereafter, a profuse downy hair growth appeared on the face, becoming coarser and

blackier. This was followed by general growth of body hair, and the hair of the scalp became coarse and less curly. For the last six months, there had been intermittent dull right loin and lumbar area pain, and the patient had noted marked fatigue during the latter three months. She developed a troublesome headache and the lumbar pain became continuous and more severe during the week before admission.

On examination she appeared to be well developed and her voice was deep and hoarse. Her weight was 103 pounds (usual weight 110 to 125 pounds). She was 148 cm. in height with a foot-to-pubis measurement of 71.75 cm. and a span of 144.5 cm. There was marked coarse hirsutism of the cheeks, chin, lips, arms, and legs, with less profuse growth on the sternum and about the nipples, and the pubic escutcheon was typically a male one. The blood pressure was 122/88. The abdomen and the lumbar region showed no evidence of mass, tenderness, or muscle spasm. The labia minora and clitoris were distinctly hypertrophic. The hymen was intact and the rectal examination was negative.

Roentgen study of the thorax and skull were negative. The abdominal film showed the right kidney lower than normal, and excretory urography revealed a slight depression and compres-

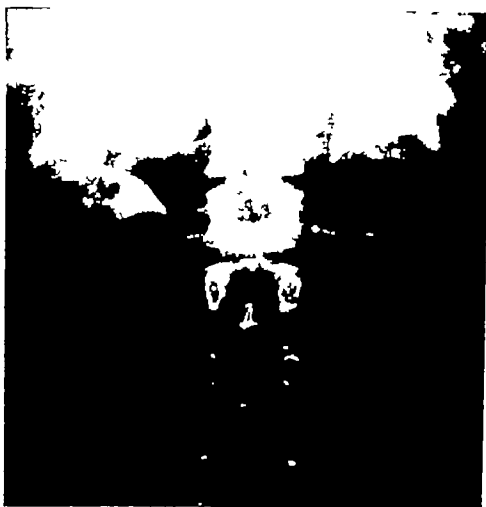


FIG 1



FIG 2

sion of the right upper major calyx with slight kinking of the right ureter (Fig 1)

Films made after right perirenal insufflation (350 cc of air) revealed a large lobulated right upper quadrant mass above the right kidney (Fig 2)

Blood studies showed a normal white cell count and differential, with 5,310,000 red blood cells and a hemoglobin of 17.2 Gm. The bleeding and clotting times were normal. The Wassermann test was negative. Blood urea nitrogen was 13.3 mg per hundred cubic centimeters, sodium chloride, 510 mg, and sugar, 85 mg

The glucose tolerance test, the vaginal smears, and the routine urinalyses were negative. The basal metabolic rate was +12 per cent

Twenty-four-hour urine specimens contained less than 100 capon units of androgens per liter and would probably have shown less than 50 units per liter with further titrations. There was no excess anterior pituitary-like substance (less than 100 mouse units). The Aschheim-Zondek test was negative. The urine contained less than 100 mouse units of estrogenic substance per liter, the blood contained less than 200 mouse units of either anterior pituitary-like or estrogenic substances per liter. Bitterling tests showed at least 1,000 fish units of "ovipositor-lengthening substance" per liter, demonstrating "immense physiologic activity" of this urine. (The normal male output is 15 to 90 fish units per liter.) The synthetic androgenic and adrenal cortical preparations are among the more familiar ovipositor-lengthening substances.

A diagnosis of adrenal cortical neoplasm was made. For four days preoperatively, the patient was given 1 L of physiologic saline solution daily and 3 cc of adrenal cortex extract (eschatin) twice daily. Under avertin and cyclopropane anesthesia, a right oblique lumbar (usual kidney approach) incision was made with subperiosteal resection of the twelfth rib. A well-encapsulated mass, the size of a large orange, was exposed at the upper pole of the right kidney. Its pedicle was prominent, and the adrenal vein was found leading directly into the adjacent inferior vena cava. There was no evidence of vein involvement. The pedicle was clamped and cut and the stump was ligated. The tumor was removed *in toto*, without any evidence of infiltration of adjacent tissues. The patient received continuous infusion of saline and glucose during and after the operation.

Postoperatively, the adrenal cortical extract was continued in large doses (5 cc twice daily) for six days and then tapered off. She was given large amounts of saline and glucose by infusion and hypodermoclysis for three days postoperatively, followed by sodium chloride by mouth. After the third postoperative day she was kept on a low potassium diet. There was no immediate or delayed shock. The wound healed *per primam intentionem*, and convalescence was uneventful and complete in two weeks.

Pathologic Report (Dr. Angrist)—Macroscopic.—The mass measured 10½ by 4 by 5 cm and was reniform and of a reddish color. Its surface was glistening and its consistency was soft except for a firm area at one pole. The cut surface showed a dominant red-gray soft substance with some translucent yellow areas and patchy, cheesy appearing areas. The firm area at one pole was oval shaped and measured 5 by 2 cm. It was a gray-yellow color with a granular appearance and many septums.

Histologic Study—The tumor tissue consists of compactly arranged large cords and alveolar masses of closely packed epithelial tissue. The cells are quite polyhedral with distinct cell borders. The nuclei vary considerably in size and shape, and an occasional regular mitotic figure is found. In some areas the cord-like arrangement bears a distinct resemblance to the reticularis zone.

The cytoplasm is granular and pale staining. Some of the intervening tissue shows deeply staining eosinophilic cytoplasm. In the deeply staining cells, which suggest older altered cell groups, intense eosinophilic staining cytoplasm with some deeply eosinophilic granular material is noted. An occasional group of cells, with more pale staining and less compact cytoplasm, shows similar eosinophilic granules. A section of tumor shows the region of the capsule with invasion by tumor. Similar invasion of vascular channels is noted. Definite fuchsinophil characteristics are present. The diagnosis was encapsulated adrenal cortical carcinoma.

After the first postoperative month there was a recurrence of menstruation, with regularity for the first time in the patient's history. Her voice gradually became feminine in character. The hirsutism and the acne receded, and she became more active physically and mentally.

Immediately after operation the urine showed a low androgen output of approximately 2 to 3 mg., figure as androsterone. Nine months postoperatively the urinary androgen output was high (30 mg.), figured as androsterone (Dr. Marine). She began to show signs of recurrence of the tumor, such as amenorrhea, acne, and hirsutism over the face, back, chest, abdomen, and extremities. Subsequently, a nontender right midabdominal mass became palpable. The blood pressure became elevated to 184/128. The voice has become deeper. High-voltage roentgen therapy is now being given without evidence of response, but the patient is unwilling to be hospitalized for further investigation at present. Her poor prognosis is evident.

Roentgen studies of the chest and skeleton show no distant metastases (May, 1940).

That the calm postoperative course might have been due to metastases is contraindicated by the evidence of the low androgen output during the month after operation.

Comment

Weinberg^{1,2} found definite atrophy of the contralateral adrenal gland in 3 of his own cases and in a majority of thirty-four published reports where autopsy had been performed. This corroborates the premise of a postoperative adrenal insufficiency advanced by Walters and Kepler,⁴ Cahill and Loeb,⁶ and Goldzieher, Ingle and Kendall⁸ produced experimental "disuse" atrophy of the adrenal cortex in rats by giving large quantities of the adrenal cortical hormone, giving support to the hypothesis that the atrophy of the contralateral adrenal, in instances of adrenal tumor, is a "disuse" phenomenon resulting from excess hormone secretion by the opposite neoplastic gland.

The high percentage of recurrences noted in the literature suggests the advisability of avoiding any delay in diagnosis and therapy in this disease. As shown by Oppenheimer and Silver,¹⁰ the so-called "Cushing syndrome" may be a

true symptom-complex of adrenal cortical carcinoma. Diagnosis in these cases should be simultaneously directed toward the adrenals, since early localization and removal of an adrenal lesion will diminish the possibility of metastasis and will lessen the amount of atrophy of the contralateral adrenal. For similar reasons, operation for such a lesion should not be postponed in order to carry out numerous investigative and laboratory procedures.

Walters and Kepler⁴ and Marine³ stress the importance of preoperative and postoperative administration of adrenal cortex extract in *large enough* amounts, together with treatment to control the body *electrolyte balance* incidental to adrenal insufficiency. Weinberg suggests that implantation of pellets of the preparations for adrenal cortical replacement therapy may be possible.

This case shows that urinary androgen estimation is not of value in determining residual tumor or early metastasis, but it is valuable in diagnosis of subsequent development of a metastasis. The extreme malignancy of many of these tumors requires removal of the surrounding adipose tissue and blood vessels to eliminate, as much as possible, any extension or tumor metastases.

Summary

1 A case of adrenal cortical carcinoma is presented.

2 Acute adrenal insufficiency, following removal of the involved adrenal gland, may be prevented by administration of adequate adrenal cortex extract and electrolyte therapy.

3 Early and thorough operation is advisable to prevent progression of atrophic changes in the contralateral adrenal cortex.

We are indebted to Dr. David Marine, Dr. Abner Weisman, Mr. C. W. Coates, Dr. Howard Wesson, and the late Dr. David Perla for their hormone studies and assistance in the management of this patient.

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Diagnosis

CLINICOPATHOLOGICAL CONFERENCES

FOURTH MEDICAL DIVISION OF BELLEVUE HOSPITAL

History

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On admission the patient was a well-developed, well-nourished man with intense bluish green cyanosis of the lips, nail beds, and skin, most marked on the face. There was no evidence of respiratory distress. The patient seemed slightly confused and disoriented. His temperature was 99.2 F, pulse, 120, respirations, 16, and blood pressure, 115/75. The head was negative. The pupils were normal and slightly irregular and reacted sluggishly to light. The fundi were negative. There was a catarrhal discharge from the nose. The ears were negative. Examination of the mouth revealed carious teeth, the tongue was clean and moist. The pharynx was moderately congested and there was a purulent postnasal drip. There was no nuchal rigidity or any palpable cervical nodes.

The heart was not enlarged to percussion, the point of maximum intensity was in the fifth intercostal space in the midclavicular line. There was regular sinus rhythm. The sounds were of good quality. A₂ and P₂ were equal and there were no murmurs. The lungs expanded equally, there were bilateral basal rales. There was some dullness at the right base posteriorly with diminished breath sounds. The abdomen, genitalia, and extremities were negative. The neurologic examination revealed absent deep reflexes in both legs and diminished deep reflexes in both arms. There was no Kernig or Brudzinski and no Babinski. The knee-to-heel and finger-to-nose tests were poorly executed. There was marked hyposensitivity to pain over the entire body with loss of testicular tenderness.

The patient's confusion rapidly changed to stupor and then to coma from which he was never aroused during his five days in the hospital. The cyanosis persisted and the respirations became more rapid and on the third hospital day changed into Cheyne-Stokes respirations alternating with periods of tachypnea and Biot breathing. The temperature remained below 101 F until death, at which time it rose to 102 F. The pulse was fast throughout the entire illness and rose terminally to 170. On the third day several small hemorrhages were observed in the fundi, and the patient developed several urticarial eruptions ranging in size from 1 to 5 cm with hemorrhagic centers on his arms and legs. A spinal tap performed on the fourth day yielded a crystal-clear fluid with a normal cell count. A cisternal puncture done postmortem yielded cloudy fluid on which no cell count was done. The patient was treated with sulfadiazine and digitals.

The laboratory findings were as follows. The urinalysis on admission was negative except for 1 plus albumin. On the day of death there was 3 plus albumin and 0-2 red blood cells per high-power field. The red blood count on admission was 5,200,000 with 100 per cent hemoglobin, the white blood count, 9,500 with 85 per cent polymorphonuclear cells and 15 per cent lymphocytes.

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Postmortem culture of the cerebrospinal fluid taken from the meninges between the cerebral hemispheres yielded *Pneumococcus* type VI and *Staphylococcus aureus*. Culture of a seared specimen of lung grew out *Staph. aureus*, *Streptococcus viridans*, and gram-positive bacilli. Samples of the cerebrospinal fluid drawn by cisternal puncture postmortem were sent to the Rockefeller Institute where cultures were entirely negative. The spinal fluid was injected into six mice. They all remained well until the nineteenth day when one of them was found dead. The brain of this mouse was found to be bacteriologically sterile and was passed to six normal mice which remained well. At the end of four weeks all of the mice of both passages were tested for immunity to lymphocytic choriomeningitis and were found to be susceptible. The cat was apprehended at our request by the American Society for the Prevention of Cruelty to Animals and was observed for two weeks at the Brooklyn Board of Health. It was reported to be a normal healthy animal in all respects.

Discussion

DR EMANUEL APPELBAUM. The outstanding clinical features in this case were encephalopathy, cyanosis, and pulmonary and cardiac signs. By far the most important signs and symptoms were those referable to involvement of the central nervous system, as shown by headache, clouding of the conjunctiva, progress-

ing to stupor, pupillary changes, and absent knee jerks. The term encephalopathy may appropriately be used to describe these various manifestations. Permit me to enumerate the more important medical conditions that may cause some form of encephalopathy. These are (1) inflammations, which include meningitis, encephalitis, brain abscess, and cerebrospinal syphilis, (2) neoplasms, (3) cerebrovascular diseases and accidents, (4) blood dyscrasias, (5) metabolic and deficiency diseases, (6) intoxications due to drugs and chemicals, and (7) toxic reactions in the course of some systemic infection.

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- 5 Obstruction of the superior vena cava.
- 6 Chest deformities
- 7 Respiratory failure in disease of the central nervous system
- 8 Alterations in the blood
 - a Polycythemia
 - b Methemoglobinemia and sulfhemoglobinemia (enterogenous cyanosis)
 - c Drugs

As will be discussed presently, the patient showed definite evidence of cardiopulmonary pathology. However, it is my belief that the intense cyanosis, which was sudden and recent, was due not to heart or lung disease but to acetanilid poisoning. It will be recalled that the patient took one-half a bottle of bromoseltzer, which contains a considerable amount of acetanilid. As you undoubtedly know, acetanilid is a benzol derivative, and poisoning with this drug is apt to cause marked cyanosis. Most instances of acetanilid poisoning are of the chronic form, following the use of the drug over a long period of time. In addition to cyanosis, these patients show depression and, finally, cardiac collapse and coma. Cardiac dilatation, even with murmurs, has been noted. A severe anemia, with many nucleated red blood cells, is not uncommon. The acute form of poisoning may follow moderate doses—as little as 10 grains. In such instances an idiosyncrasy is undoubtedly a factor. The collapse and cyanosis occur early in this form. Anemia is not a feature of the acute intoxication. The cyanosis, which may persist for weeks after the drug is stopped, is due mainly to the presence in the blood of sulfhemoglobin and paramidophenol derivatives. It should also be noted that the cyanosis is generally associated with anoxia, but the severity of the anoxia does not necessarily parallel the degree of cyanosis.

In this connection I would like to say a few words about enterogenous cyanosis. This is a chronic disease characterized by marked intestinal disorder—either diarrhea or constipation—clubbing of the fingers, and an intense cyanosis due to the presence in the blood of both methemoglobin and sulfhemoglobin, derived from products in the alimentary tract.

With regard to the patient's pulmonary condition, I believe that there was marked congestion and probably also a pneumonitis. The roentgenograms of the lungs would seem to support this belief. It is, however, dif-

ficult to say whether or not there was also a diffuse fine pulmonary fibrosis.

There is no doubt there was an enlargement of the right side of the heart. As you will note in the roentgenogram, the configuration is that of a cor pulmonale, in which the enlargement of the right ventricle follows hypertension of the pulmonary circulation. For clinical purposes cor pulmonale may be classified into primary and secondary. In the former the disease begins with enlargement of the right ventricle, while in the latter the right-sided heart failure follows a preceding left ventricular failure. The primary form, which is less common, may be either acute, subacute, or chronic. The acute cor pulmonale results from a sudden obstruction of the trunk or first branches of the pulmonary artery by embolism or thrombosis. There must be a sudden blocking of at least 60 per cent of the pulmonary circulation. In rare instances it may be caused by a sudden perforation of an aortic aneurysm into the pulmonary artery.

The chronic cor pulmonale is caused by mitral stenosis, chest deformities, pleural or pulmonary fibrosis, emphysema, and other chronic pulmonary conditions that cause an increased resistance in the pulmonary circulation. In rare instances it is caused by a primary pulmonary endarteritis, which has been ascribed to syphilis by Ayerza and others. The course of the chronic form is progressive and slow over a period of years.

In the subacute cor pulmonale there is a relatively rapid development of right ventricular enlargement and failure in a patient with no previous cardiopulmonary disease. The course ranges from two to eight weeks. It differs from the acute form by the more gradual onset and a slightly more prolonged course and from the chronic form by the absence of antecedent cardiopulmonary disease and by a much shorter course. As far as I know, the only condition that causes the subacute form is carcinomatous lymphangitis, metastasizing from a gastric carcinoma, usually scirrhus.

It is difficult to explain the cor pulmonale in our patient unless we assume that he had some pulmonary vascular disease or diffuse fibrosis. In summary, I believe that the patient had either encephalitis or cerebrospinal syphilis, pulmonary congestion and pneumonia and possibly a diffuse fine fibrosis, and an enlargement of the right side of the heart typical of cor pulmonale.

DR HENRY C. FLEMING. I seriously doubt

that this patient suffered from an acute manifestation of acetanilid poisoning. I do not believe that one-half of a small 10-cent bottle of bromoseltzer contains sufficient acetanilid to cause such a reaction.

In my opinion this patient suffered from a long-standing syphilitic disease of the central nervous system and the spinal cord—*tabes dorsalis*. The etiology of this encephalopathy is not clear but it may have been a virus.

DR. EDWARD H. REISNER, JR. It was originally thought that this case should be a medical examiner's case because of the history of acetanilid ingestion. However, the medical examiner who reviewed the case had never seen such manifestations from acetanilid poisoning and refused to autopsy the patient himself on the grounds that there was insufficient evidence that any drug had caused death.

DR. MENNASCH KALKSTEIN. I would like to raise the question, in view of the ulceration of the foot, as to whether or not tetanus might be the cause of the patient's symptoms.

DR. APPLEBAUM. The patient's clinical course was entirely different from anything resembling tetanus. I do not believe that diagnosis could be considered.

DR. A. WALTER FREIREICH. Did the patient receive tetanus antitoxin? While this is not the picture of tetanus, I believe there are a few cases on record of allergic reactions and encephalitis following the injection of tetanus antitoxin.

DR. REISNER, JR. As far as we know this patient did not receive tetanus antitoxin. The ulceration of the heel came from a nail on the inside of his shoe and was a long-standing chronic affair.

DR. MAX TRUBEK. I think that all the evidence here points to the diagnosis of an acute encephalitis due to a virus. There probably was old *tabes* and perhaps syphilis was present elsewhere. The cyanosis could have been caused by the bromoseltzer or the sulfonamide or by congestive heart failure. The terminal polycythemia was probably due to dehydration.

Pathology

DR. DAVID M. SPAIN. The anatomic interpretation of this case resolves itself into three distinct considerations. Anatomically, the symptoms and signs of this case are fairly adequately explained. However, in certain instances, the etiology of the pathologic changes is not quite clear.

At autopsy, the heart weighed 510 Gm and revealed a massive concentric hypertrophy of the left ventricular myocardium to such an extent that the interventricular septum bulged into the right ventricular chamber, thereby markedly reducing it in size and impinging considerably on the pulmonary outflow tract. There also was a moderate hypertrophy of the right ventricle. These findings explain the signs that were interpreted as caused by *cor pulmonale* during life. This method of causing signs of failure of the right side of the heart is sometimes known as Bernheim's syndrome and occasionally causes confusion clinically in the presence of hypertension. However, the cause of the cardiac hypertrophy is not clear. There were no congenital anomalies, no valvular damage, and only a minimal amount of arteriolar nephrosclerosis. The syphilitic aortitis caused only a minimal amount of anatomic change. Whether or not the patient at one time had had hypertension cannot be definitely ascertained at this time.

The neurologic findings consisted of two separate entities. The cord lesion was typical of *tabes dorsalis*.

On the other hand, the brain lesion appeared to be entirely unrelated to the syphilis and the cord lesion. On gross examination, the brain showed a marked hemorrhagic encephalopathy in the white matter of both frontal lobes. On microscopic examination, sections through the superior frontal gyrus stained for myelin sheath showed an acute disseminated leuko-encephalitis. There were many areas of early myelin degeneration throughout the white matter of this section. These areas were, for the most part, perivascular and were hemorrhagic, containing many cells filled with brownish pigment. The partially demyelinated areas contained a number of mononuclear cells. According to Dr. L. D. Stevenson, who examined the brain and the spinal cord lesions, the changes did not appear to be syphilitic in origin but were much more like the encephalitis caused by a virus infection.

Anatomic Diagnosis

Primary. Acute disseminated meningo-encephalitis.

Secondary

Heart. Massive concentric myocardial hypertrophy — left ventricle with bulging of interventricular septum into right ventricle.

Moderate myocardial hypertrophy—right ventricle
 Aorta Syphilitic aortitis
 Lungs Congestion
 Liver Chronic passive congestion
 Spinal Cord Tabes dorsalis

DR APPLEBAUM The postmortem, to my mind, does not adequately explain all the clinical features. The configuration of the heart as shown by the roentgenogram was certainly typical of cor pulmonale. Acetamid poisoning has, of course, not been ruled

out. The encephalopathy is explained by the finding of a demyelinating form of encephalitis. Perivascular demyelination has been seen most frequently in postinfectious encephalitis but also has been observed recently in the Western equine encephalomyelitis. But it is difficult, if not impossible, to say whether or not a virus might have been transmitted through the cat's bite. I do not believe that this is very likely. It is unfortunate that the brain was not subjected to virus studies.

WOMAN'S AUXILIARY—ONONDAGA COUNTY

The Onondaga County Medical Society and its Woman's Auxiliary are planning a luncheon on Tuesday, September 23, 1941, at the Hotel Syracuse, Syracuse, New York, as part of the program of the regular Fifth District Meeting of the Medical Society of the State of New York.

An entertainment is being planned to follow the luncheon, and the doctors' wives as well as the doctors are cordially invited to attend this function. Reservations: Dr Sabine, Little Falls, or Virginia B. Marty, 301 Summit Avenue, Syracuse, New York.

"SHOE LEATHER EPIDEMIOLOGY"

"Shoe leather epidemiology" in regard to tuberculosis case-finding is a term coined by Dr Edward S. Godfrey, Jr., state commissioner of health, to emphasize the fact-finding work that needs to be done by physicians, nurses, and social workers in discovering the sources of infection, says *Health News*. Commissioner Godfrey's term has special significance in connection both with the campaign which he has officially launched for the substantial eradication of tuberculosis in upstate New York by 1960 and with the recent observance of the Fourteenth Annual Early Diagnosis Campaign conducted by national, state, and local tuberculosis and health associations in cooperation with the public health authorities.

"Shoe leather epidemiology," according to Commissioner Godfrey, "differs from 'swivel chair epidemiology,' which consists in attempting to solve a problem by prepared statistical tables, in that it means going out on the highways, byways, and alleys, walking the streets and climbing the stairs, or bumping over country roads, in order to ferret out the sources of tuberculosis infection and to find out what makes the statistics 'that way,' to find out what lies behind them, to find the vulnerable point for attack, and to find the source of infection."

"Tuberculosis is an infectious disease. It cannot be acquired unless a person comes in contact with tubercle bacilli. It is also an opportunist disease. The germ develops clinical tuberculosis in those persons who have the lowest resistance. Contributing to lowered

resistance, we usually find poverty and all of its allies, such as faulty nutrition, inadequate housing and sanitation, overwork, worry, strain, and acute illnesses.

"These allies of the disease need to be reduced to writing on the case history of the patient. If infection is present, then the correction of environment becomes almost as important as finding other cases because this guards against the spread of the disease and the breakdown again of the patient after taking the cure."

"Shoe leather epidemiology" means going from the home to the work place, to the school, to the associates, to all of the immediate contacts of the patient, adults especially, in order to find the source of infection. We are too prone to be satisfied if we line up the women and children contacts for examination. They are the easiest to reach. We must recognize and do also the harder job, the bringing to x-ray examination of the male adult contacts and those of advanced age, both men and women, among whom source cases are most likely to be found."

The object of the 1941 "E D C" is to employ every channel for informing the public that "A Good X-Ray Is Your Doctor's Best Aid in Discovering Early Tuberculosis." Commissioner Godfrey urges the department's headquarters and district staffs to utilize the campaign literature, posters, and other educational devices that are obtainable from the State Committee on Tuberculosis and Public Health of the State Charities Aid Association and its county and city tuberculosis and health associations.

Abstracts of Proceedings
of the
NEW YORK PATHOLOGICAL SOCIETY

REGULAR MEETING, FEBRUARY 27, 1941

JEAN OLIVER, *President*

JOHN M. PEARCE, *Secretary*

Studies on the Relation of the Kidney to Cardiovascular Disease Dr M C Winternitz (*by invitation*), *Yale University School of Medicine*

The clinical and anatomic changes that follow bilateral nephrectomy contrast sharply with those that result from the ligation of both main renal arteries. Moreover, the fulminating symptoms and the lesions that characterize the latter group are reproduced by an injection of extracts of kidney into the nephrectomized dog. This has formed the basis of an experimental study of the relation of the kidney to cardiovascular disease, with the following results to date:

The survival time after bilateral nephrectomy may vary from six to ten or more days. The electrolytes of the blood are influenced by the procedure, and elevation of serum potassium is associated with heart block. After a restricted potassium intake the survival time is prolonged, the potassium elevation is not significant, and death occurs with the blood nonprotein nitrogen at levels otherwise not observed.

The vasodepressor agent of kidney extract is easily removed. The vasopressor substance so far has not been separated from the necrotizing principle. It has been purified so that a content of 1 gamma of nitrogen per kilogram of body weight will raise the pressure of a dog with a typical and marked renin curve.

The necrotizing process involves heart muscle, diaphragm, and smooth muscle of vessel walls—both of arteries and veins—as well as that of the alimentary canal and other hollow viscera. Muscle necrosis frequently is associated with hemorrhage, but these two processes each occur independently. Moreover, there is some evidence that the two effects may be dependent upon different principles.

The lesions of the heart and blood vessel wall which follow the use of kidney extracts are rarely associated with superimposed thrombi. Those that result from extracts of

some other organs, testicle in particular, as a rule are complicated in this way. This is dependent upon the greater influence the latter extracts exert on the coagulation time of the blood and emphasizes the importance of clotting time as distinct from mural lesion in association with thrombus formation. Tolerance is manifested to increasing daily injections of kidney extracts by some animals, but this does not involve appreciable changes in either the vasodepressor or vasopressor effects. Such animals do not survive bilateral ureteral ligation for a longer period, but the hemorrhagic and necrotizing lesions are distinctly less extensive.

Moreover, preliminary experiments indicate that their serum tends to protect other animals against the necrotizing effects that follow the various experimental procedures now known to be associated with muscle necrosis.

Drs. Mylon, Katzenstein, and Waters have participated in this study.

Discussion

DR. HOMER W. SMITH (*by invitation*). Although Dr. Winternitz has not presented his results with any special reference to the Goldblatt experiment, they certainly bear upon the pathologic changes that accompany protracted renal ischemia, and I have been thinking of their physiologic significance in this connection. Certainly, we cannot conceive that these necrotizing and hemorrhagic cytotoxins are related to the normal function of the cardiovascular and renal systems, and it is pertinent to speculate concerning their origin.

The work of Neubauer, Krebs, and others has demonstrated that the process of deamidization of amino acids is an oxidative one—that is, amino acids generally are oxidized to keto acids. This process of deamidization is carried out by oxidative

deamidases in the liver, the kidney, the intestines, and other organs and requires a substantial oxygen tension. On the other hand, the investigations of Schuler and his co-workers, of Holtz, and of Kempner have demonstrated that in the absence of oxygen, or at low oxygen tensions, tissue decarboxylase can remove the carboxyl group from at least certain amino acids, leaving an amine. To what extent decarboxylase and oxidative deamidase are interdependent in the intact organ is unknown, but in *in vitro* experiments they can operate separately. In the absence of oxygen, aromatic amino acids such as tyrosine or phenylalanine can be decarboxylated with the formation of pressor and cytotoxic amines. Holtz and his co-workers have demonstrated that, under anaerobic conditions, kidney extracts produce the powerful pressor hydroxytyramine from the innocuous dihydroxyphenylalanine (dopa).

Dr R J Bing has carried this problem one step closer to our present subject by showing that when dopa is injected into, or perfused through, the ischemic cat kidney a powerful pressor substance, presumably hydroxytyramine, is thrown from the kidney into the systemic circulation.

Though the contribution made by the kidney to total deamidation is no doubt relatively small as compared with that of the liver, yet the concentration of oxidodeamidase per gram of tissue is from four to eight times higher in the kidney than in the liver. And it is not impossible that certain deamidations are so unequally distributed between the two organs that failure of the kidney in this respect could produce most malign results.

In view of the evidence I have just mentioned, one might explain the Goldblatt experiment as anaerobic decarboxylation, coupled with anoxic failure of deamidation of certain nitrogenous substances, though not necessarily tyrosine or phenylalanine, with the production of pressor and cytotoxic agents which wreak havoc with the cardiovascular system. There is, of course, no proof of this speculation at the present time, and I am quite unable to set into this frame renin or the renin-activator, angiotonin, and angiotonin-inhibitor system so well studied by Dr Page and his colleagues. But the view that the Goldblatt experiment and, indeed, the view that essential hypertensive disease in man represents a metabolic failure of oxidative deamidation of one or more substances important in intermediate metabolism has certain attractions. The local renal theory

if I may call it such, is not fully supported by our observations on the functional status of the kidney in subjects with essential hypertension, nor does the local renal theory explain genetic predisposition, the presence of hypertension in some subjects with nephritis and its absence in others, or the suggestive similarity between essential hypertension and pre-eclampsia and eclampsia, and the high incidence of essential hypertension in post-eclamptic statistics. A general theory of hypertension which encompasses renal ischemia as one, but not the only, etiologic possibility is perhaps a conservative rather than a radical interpretation. The crucial question to be answered is whether or not oxidative deamidation is the essential metabolic fault. If Dr Bing's experiment proves to be anything more than an exotic phenomenon involving one amino acid, I should not be surprised if it assumes considerable historic significance in this connection.

It is pertinent to this point that Dr Schroeder has been able to reduce blood pressure in rats with experimentally induced hypertension and in subjects with essential hypertension by means of tyrosinase. This is not a deamidase but an oxidase that oxidizes phenolic derivatives, and it is tempting to see Schroeder's tyrosinase promoting the oxidation of some compound such as the hydroxytyramine, which is presumably formed in Bing's experiment on the ischemic cat kidney.

All this is not too remote from Dr Winternitz's observations. Renal extracts must contain a variety of enzymes, coenzymes, and related substances which are capable, on intravenous injection into nephrectomized animals, of exerting cytotoxic effects. When the extracts are prepared from ischemic renal tissue there is the added possibility of undetoxified nitrogenous remnants of intermediate metabolism. The puzzling thing, no matter how one interprets the result, is the extraordinary toxicity of these extracts.

There is one question I should like to ask Dr Winternitz. If the arteriolar lesions of experimental and human hypertension are caused by humoral agents rather than by elevated pressure *per se*, why is the pulmonary bed immune? And why is the ischemic kidney, which is said to be "protected by the clamp," also immune?

DR IRVING GRAEF. I think I need not apologize for pointing with some pride to the fact that another strong fresh breeze of information on the subject of renal hypertension has come from the pathologists. Goldblatt,

a pathologist, gave a clearly substantiated and beautifully demonstrated experimental method for the production of chronic hypertension in animals. And now, from another pathologic laboratory, a fresh effort has resulted in the demonstration that in the mechanisms involved in experimental hypertension there is more than the production of hypertension, and there is more than the effect of hypertension. I think the chief contribution of Dr. Winternitz's tour de force lies in his dissociation of the effects of renal ischemia on the body. He has referred, in passing, to the central nervous system but has not detailed the special changes that may take place in the central nervous system in hypertension, even without renal ischemia. He has shown the high tropism of some of the substances which can be derived from the kidney, from the testis, and perhaps from other organs for smooth muscle. Without identifying these substances, finally, he has shown that changes in the organs which are encountered in the production of hypertension may be associated with some of the special vascular phenomena, some of the special blood alterations, and some of the changed metabolic processes. Dr. Smith has concerned himself with the finer details of the metabolic alterations which might be anticipated to occur in ischemic kidneys. Whether they occur in the normal kidney in the segmental manner or in an interrupted manner is something on which there is no information. Whether the normal kidney is concerned with the elaboration of substances that contribute to alterations in the vascular tonus is something to think about, though we cannot discuss it in any detail on the evidence available.

My concern with experimental hypertension has been to try to dissociate, if possible, among those animals that exhibit clean-cut evidence of hypertension, renal insufficiency and vascular disease. In a survey of the material furnished me by Dr. Irvine Page I have encountered three groups of animals: first, with little or no hypertension, though they have had renal ischemia. But with this finding of little or no hypertension there was a high degree of renal insufficiency and associated vascular lesions. In a second group we found the classic picture of the so-called malignant hypertension, with renal insufficiency, severe progressive hypertension, and disseminated vascular necrosis. As you may expect, there was a third group with severe acute hypertension with disseminated vascular disease and no definite evidence of renal in-

sufficiency. The common or garden variety of malignant hypertension constitutes the largest group, but these two other groups at either extreme suggest the dissociation pattern that Dr. Winternitz has offered. Certainly, it behooves us not to oversimplify this problem and assume that hypertension alone, renal insufficiency alone, or in combination is effective in producing this, that, or the other feature.

I have also been impressed by the fact that the vascular lesions in the dog are quite different in their distribution from the lesions found in man. In man, I think it is fair to say that one is impressed with the fact that the necrotizing lesions are below the diaphragm, in the splanchnic area, with involvement of the gastrointestinal tract and the genitourinary tract and not much else. Eye lesions are a positive exception; cerebral lesions are described occasionally. But one can search through the average case fairly minutely and grade the lesions according to distribution and find that they generally occur according to this pattern of major splanchnic involvement. I do not think the evidence in the dog throws any light on this particular problem. Coronary lesions are extremely rare in malignant hypertension in man and extremely uncommon in my dog material, although myocardial necrosis is extremely common. Therefore, I am not sure that the injury to the myocardial muscle is the same as the injury to the smooth muscle of the intestine or arterioles.

The eye lesions are most interesting. The eye lesions in the dog are different from eye lesions in man, as you might expect, for the vessels in the dog's eyes are different from the vessels in man's eyes. These differences concern the muscular coats, the presence or absence of elastic lamellae. And in the case of the iris vessels, as Dr. Robert Lambert has shown, in man they possess no muscle but are simply smooth fibrocollagenous structures without cells, much like aged arterioles in the spleen. But in the dog, the iris vessels are thick, and the thickness is due to the presence of considerable smooth muscle. Differences in species are not new to us, and we are all well aware of the need to beware in transferring the results of animal experiments to man.

Dr. Smith closed his discussion with a question, and I have a similar question that is disturbing me. Why is it that the necrotizing lesions are virtually confined to the arterial side of the circulation? I have not found

them in the portal vein or the pulmonary vessels, or in the bladder or uterus I have found them in the vessels of the bladder but not in the muscles of the bladder alone

Finally, I am sure that Dr Winternitz does not equate the necrotizing factors that are obtained from autolysis of the kidney with the mechanisms that are operating in an ischemic kidney that is not necrotic. In much of the renal material I have examined I have been unable to find any evidence of necrobiosis, in others, considerable necrosis. So, I am reasonably certain that some differences in the lesions may be attributable to the presence or absence of infarcts, and they should be differentiated from those experiments that are based on organ extracts only.

DR BENJAMIN JABLONS (*by invitation*)
As one who has been a protagonist of kidney extract therapy for a period extending over almost ten years, I am afraid I would feel as though I had been indicted after having listened to Dr Winternitz's masterly contribution on the necrotizing and thrombotic effect of substances extracted from the kidney on various parts of the cardiovascular tree if it were not for one important point that needs to be emphasized—and that is that we must differentiate between various types of kidney extracts. In other words, a kidney extract made with saline solution from the kidney tissue left after preliminary acetone-ether treatment and subjected to the various procedures outlined by Dr Winternitz is not the same as one made from substances extracted from the kidney by acid alcohol and water. Biochemists tell us that when one changes the acid reaction—i.e., the pH of a solution that is used as a solvent with kidney tissue—one obtains materials that differ chemically and pharmacologically and produce different effects. One point that we have emphasized from the earliest days of our experiments is that kidney extracts must be made with tissue that is frozen in the slaughter house. The material must be taken out of the carcass within twenty minutes of the death of the animal and frozen immediately with dry ice. We have found that even refrigerating this material in the frigidaire for three hours previous to extraction is insufficient to prevent the production of considerable quantities of choline, histamine, and other biogenic amine substances that Dr Smith referred to. We also found in our early experiments that when we used material which contained slight traces of protein we would get these local necrotizing effects

when it was injected into animals, and we also found this marked increase in the coagulability reported tonight, so that from the time of the earliest days of our work we were careful to make a protein-free extract because it does not produce these local lesions when injected into animals or human beings. I think that, for the sake of clarity and to avoid confusing the various fractions that are now receiving so much attention on the part of many workers in different laboratories, the extracts should be named either by the method used to extract them or in some other identifying manner, so that when we speak of an acid alcohol extract we refer to a substance that belongs in one category and, when we speak of the kidney extract prepared by Dr Winternitz, we are dealing with a protein residue freed of certain soluble substances by acetone-ether, fractionated by the various procedures that he spoke of. Then we know that we are speaking of something entirely different.

Again, I want to express to Dr Winternitz my thanks for the facts that he has brought to us, his paper will help to clear up many things that have puzzled us for a long period of time.

DR M C WINTERITZ. May I first thank the discussers for their kindness? Dr Smith has brought forward a significant approach. With others, we also realize that disturbances in deamidization may be associated with some of the disease phenomena that follow ischemia of the kidney. Our point of view differs somewhat from that expressed by Dr Smith. We do not believe that the amines indicated are causatively involved in the production of the lesions. These amines would be removed in the preparation of the extracts we have used. We are of the opinion that disturbances in the enzymatic deamidization may lead to muscle cell necrosis, but the evidence is not adequate to support this hypothesis at present.

The extracts we have employed were preparations of normal kidney. Necrotic kidney was only used in preliminary experiments. As Dr Jablons has so clearly indicated, it is necessary to remove the organs promptly on the death of the animal, freeze them at once, and avoid any possible autolysis in their preparation. These specifications have been followed minutely, and the extracts have been kept at -18°C in small, individual containers until they were used.

The differences manifested after narrowing the ureters as distinct from the arteries have interested us. With the latter, as is well known, hypertension is usually marked. It

is infrequent with the former, and this raises the question of the mechanisms involved in the two procedures. Ureteral narrowing results, first, in compression of the vein and interference of the escape of products that follow the passive congestion of the organ. But the compression of the vein is not at a constant level, and many possibilities for disturbed chemical change may be involved.

Dr Smith referred to Dr Schroeder's recent publication. In this association it may be pertinent to mention that Dr Philip Cohen has carried out a few preliminary experiments for us to determine whether kidney extracts inhibit special enzymatic functions of smooth muscle. Should this approach prove feasible, it might be of considerable aid in clarifying some of the enzymatic mechanisms associated

with muscle necrosis. It should also be mentioned that while muscle necrosis is rare with other organ extracts it does occur with that of the testicle, particularly in the nephrectomized animal. This happens in the absence of hypertension and is of importance to the morphologist who frequently encounters arteriosclerosis without either hypertension or renal disease. It should be said in reply to Dr Smith's question that the walls of the pulmonary vessels show necrosis in the experiments with tissue extracts.

As Dr Jablons has indicated, the extracts he has utilized are quite different from those employed by us, and it is essential to state clearly just how an extract is prepared and the nature of the fraction that is used in any particular study.

VACANCIES IN THE U S NAVAL RESERVE MEDICAL CORPS

A number of vacancies have been created in the Medical Reserve Corps of the United States Navy. These include the rank of Lieutenant, Junior Grade and Lieutenant, also a number of appointments as Lieutenant Commander for Special Service (surgeons, orthopedists, otolaryngologists, neurologists, urologists, intern-

ists, neuro-psychiatrists, radiologists, and pathologists).

Further information is obtainable on communicating with the District Medical Officer, Headquarters, Third Naval District, 90 Church Street, New York City. The telephone number is REctor 2-9100.

EXAMINATIONS FOR MEDICAL POSITIONS ANNOUNCED BY CIVIL SERVICE COMMISSION

Examinations for three types of medical positions in the government service have just been announced by the Civil Service Commission. This is another indication of the great demand for technically trained personnel of every kind in the defense program. Each of these positions has been open to competition within the past year, but the demand grows even faster than the supply.

Junior medical officer positions at \$2,000 a year will be filled at St. Elizabeth's Hospital in Washington, D. C. There are two types of internship: Rotating and Psychiatric Resident. The rotating internship consists of 4 months of surgery, acute medical service, and of chronic medical service, 2 months of obstetrics and of pediatrics, on affiliation, 3 months of general laboratory work, and 6 months of psychiatry. To qualify, applicants must be fourth-year students in a Class A medical school. Applicants must show completion of the course prior to June 30, 1942, before they may enter on duty.

Graduates in medicine who have already served an accredited rotating internship are offered a postgraduate internship of 1 year of psychiatry (American Medical Association Classification 2, Type B). To qualify for this type of appointment, applicants must have completed their fourth year of study in a Class A medical school subsequent to December, 1935, and must have

either a B. M. or M. D. degree. Applications will be accepted at the Commission's Washington office until November 15, 1941, and will be rated as soon as practicable after receipt.

Medical technical assistant positions at \$2,000 a year and medical guard-attendant positions at \$1,620 a year will be filled in the Mental Hygiene Division of the U. S. Public Health Service. Applicants must be registered graduate nurses, or have been honorably discharged (within the 10 years immediately preceding date of receipt of application) from active service in the Medical Corps of the Army or Navy, or have had 3 years' service as guard-attendant in a federal penal or correctional institution. In addition, for the technical assistant, applicants must show that their experience has included one year of responsible training or experience in Clinical Laboratory Technique, Pharmacy, or X-ray Laboratory Technique. Applications will be accepted until further notice. Persons who were rated eligible for these two positions in the examination which closed in February of this year need not apply for this new examination as eligibles from both examinations will be combined on the new register.

Further information and application forms may be obtained at any first- or second-class post office or from the Civil Service Commission in Washington. Qualified persons are urged to file their applications at once.

Medical News

County News

Greene County

Nomination of officers, in preparation for the October election, was made at the midsummer meeting of the county society at Pines Inn, Windham, on July 8. The following were nominated:

Dr William Vernon Wax, president, Dr Elisha B Van Deusen, vice-president, Dr William M Rapp, secretary, Dr Mahlon H Atkinson, treasurer, Dr Percy Waller, chairman of legislative committee, Dr T Earl McQuade, chairman of public relations, Dr Kenneth F Bott, delegate to State Society, Dr William A Petry, alternate delegate.

Dr Herbert F Weinauer presided. Dr Carl Eggers, New York City surgeon, spoke on "Cancer of the Digestive Organs."

Kings County

Officers of the Medical Society of the County of Kings and the Academy of Medicine of Brooklyn, Pediatric Section for the coming year are as follows: president, Dr Sydney Nussbaum, Brooklyn, secretary, Dr Harry S Bikoff, Brooklyn. Place of meeting is 1313 Bedford Avenue, Brooklyn, and the time 9 00 P M., on the fourth Monday of each month, October to April, inclusive.

Madison County

Twenty-seven members of the county society played golf in the afternoon at the Oneida Country Club on July 10 and listened to a program on scientific topics in the evening at the clubhouse. Dr Howard Beach, of Oneida, is president and Dr L S Preston, of Oneida, is secretary.

Golf tournament winners: low gross, Dr J D George, Jr, of Verona, low net, Dr Ernest Freshman, of Oneida, blind scores, Dr John Sill, of Hamilton, and Dr Ellsworth, of Madison. The tournament lasted most of the afternoon. Dinner was served at 6 30 P M.

Three Syracuse doctors, who provided the program, follow:

"Recent Advances in Neuropsychiatry," Dr Eugene N Boudreau, "Medical Aspects of Hypertension," Dr J G Fred Huss, "Surgical Aspects of Hypertension," Dr Frederick S Wetherell.

Montgomery County

Dr Elmer Harrison Ormsby, of Amsterdam, who died on July 17, had a distinguished medical military record in the first World War. "His professional relations," says the Amsterdam Recorder, "were with the Amsterdam City Medical Society, of which he was a past president, the Medical Society of the County of Montgomery, in which he held practically all the offices at various times, the New York State Medical Society, the American Medical Association, the Alumni Association of the Albany Medical College, the Surgeons Club of Rochester, Minn., of which he had been president, and the New York State Association of School Medical inspectors which he served as secretary-treas-

urer. At the time of his death he was president of the Fourth District Branch of the New York State Medical Society and was engaged in preparing a program for the annual meeting of the branch. He was also a member of the House of Delegates of the state society."

Nassau County

Doctors of South Nassau Communities Hospital hold the golf championship of the Nassau County Medical Society, having won the first leg on a new trophy after a tournament held as part of the annual society outing at Lido Country Club on July 9.

The team defeated doctors representing Nassau Hospital, which was second, and North Country Community Hospital, which was third. Dr R M Bowles, of Hempstead, was captain of the winning team. The trophy must be won three times for permanent possession.

About 100 attended the outing. Dr Martin L Sowers, of Far Rockaway, with 79, won low gross, Dr John M Galbraith, of Glen Cove, the low net, 71. Dr Joseph Tibone, of Rockville Centre, Dr A M Bell, of Sea Cliff, and Dr William Burke, of Hicksville, placed in that order in the kicker's handicap.

Dr Aaron L Higgins, of Rockville Centre, retiring president of the society, handed over the gavel to Dr Charles W Martin, of Woodmere, at the dinner in the evening.

Oneida County

The county society held its outing on July 8 at the Utica Gas and Electric Club House at Trenton Falls. The speaker was Dr Samuel J Kopetzky, president of the State Society.

Richmond County

The county society approved the Medical Expense Fund of New York, Inc., at a special meeting on July 23.

St Lawrence County

The county society held its second social meeting of the year at Massena Country Club on July 24. There was a meeting at noon. Luncheon was followed by golf and cards. The wives of the members were invited.

Suffolk County

The Hampton Clinical Society met on July 25 with the following program: "Urological Subject," Dr William Gaynor, "Deep Infections of the Neck," Dr deGraff Woodman, of New York, "Movies Plastic Surgery" (Davis & Geck).

Washington County

The summer meeting of the county society was a social evening, without scientific program, held at the Hotel Willard, Cleverdale, on Lake George, on July 8.

About fifty of the doctors and their wives were present. Some of the members came early and enjoyed the lake in the afternoon. After

dinner, the latent talent of the group was exemplified in group singing with Mrs L. A. White at the piano—Reported by D. M. Vickers, M.D., Secretary

Westchester County

An urgent appeal to doctors to act as first-aid instructors in every community in the county has gone out from the headquarters of the Westchester defense council. In connection with plans for civilian defense, the council is planning to give courses in first aid at conveniently located points in every town and village.

Cooperating with the county defense council in its efforts to enlist doctors as first-aid instructors are the Medical Society of the County of Westchester and the Westchester chapter of the American Red Cross.

A letter from James E. Bryan, executive secretary of the medical society, to county doctors says "A survey of police throughout the

county shows only 10 per cent of them have had any first-aid training. It is an essential part of the national defense program to train all the uniformed public authorities and a large number of lay defense workers in each community in the fundamentals of first aid."

Each doctor would teach in his own community, according to the plan, and courses would be arranged to suit the convenience of the instructor as far as possible.

Yates County

The Lake Keuka Medical and Surgical Association, in its forty-second annual session, elected Dr. Walter A. Callahan, of Rochester, as president to succeed Dr. Leon M. Kysor, of Hornell. Dr. Kenneth G. Rowe, of Dansville, was elected vice-president and Dr. Virgil H. F. Boeck, of Dundee, was renamed secretary-treasurer. The association includes medical men from twenty-two counties in New York State and several in northern Pennsylvania.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Bernard Cohen	75	Buffalo	July 15	Buffalo
Jessie S. Edwards	77	W. M. C. N. Y. Inf.	July 17	Southampton
Charles B. J. Mittelstaedt	70	Bell	July 25	Kingston
Thomas J. Moss	77	N. Y. Univ.	July 24	Manhattan
Louis Scheinberg	66	P. & S. N. Y.	July 22	Bronx
Archibald M. Strong	60	P. & S. N. Y.	July 21	Bronx

HEALTH HERE AND IN EUROPE

In the midst of Attorney-General Arnold's cudgeling and sniping at the medical profession and the spreading contagion of the American Association for Social Security's support of the spoils system in the practice of medicine by the government, it is refreshing to consider the health record in this country for the year just ended, remarks the *Connecticut State Medical Journal*. True, 1940 did not set a new low mark in mortality figures, but it does rank with the best health years on record. The Metropolitan Life Insurance Company has found that among its many millions of industrial policyholders living in the United States and Canada the death rate for 1940 was 7.60 per 1,000, the equal of the lowest figure ever registered for this group. The decline in mortality rate among policyholders of this large company has been 40 per cent between 1911 and 1940, and this has resulted in a great saving of lives at virtually every period of life.

Ten diseases and conditions recorded lower mortality rates in 1940 than in any previous year—namely, measles, scarlet fever, whooping cough, diphtheria, pneumonia, tuberculosis, diarrhea and enteritis, appendicitis, puerperal diseases, and homicide. Influenza and suicide showed an improved mortality rate. Increases in mortality were recorded from diabetes, cancer and the cardiovascular renal diseases, an indication of the increased proportion of policyholders at the older ages.

We turn to Europe, torn with strife and starving because of a few insanely selfish political leaders. Europe has experienced its worst record in many years. Cerebrospinal meningitis in England during 1940 claimed about 12,500 lives, eight times the mortality for 1939. An influenza epidemic in the first quarter of the year, aided and abetted by war conditions, accounted for 5 per cent of the deaths and was two-thirds above that for the preceding year. Infant mortality for the first quarter rose from 65 to 77 per 1,000 live births. Civilians numbering 23,081 were killed in air bombardments in England during 1940, and fatal accidents during the first fifteen months of the year rose to 11,424.

Data on mortality from the Continent is fragmentary. Cerebrospinal meningitis was on the increase. Deaths from typhus rose appreciably, particularly in Rumania. It is to be feared that the frightful breakdown in sanitary conditions that occurred in and after the last war cannot be avoided in this war. Typhoid and dysentery were abnormally high in frequency in certain countries. The outlook for 1941 is extremely uncertain. Crowding in air shelters with poor sanitary conditions in many of them may be the means of spreading communicable and infectious diseases to pandemic proportions. Civilian medical service is already suffering from the inroads of war service requirements. Apprehension is felt everywhere for the health of Europe.

Hospital News

Newsy Notes

The Arnot-Ogden and St Joseph's hospitals in Elmira could increase their capacities more than 50 per cent in case of war emergency, they show in a survey prepared in line with disaster plans of the Hospital Association of the State of New York and the American Hospital Association. "Triple Cities" hospitals in Binghamton, Endicott, and Johnson City are prepared to hospitalize a total of 1,743 patients in event of sabotage or war emergency. This represents an increase of 679 cases over the normal patient load.

Beware of "bootleg" hospitalization insurance sold through the mail by companies not qualified to do business in this state, is the special warning of the Buffalo Better Business Bureau issued to Buffalo families.

"In many cases we have found that these concerns use extremely misleading advertising and certificates," said Gordon E. Smith, bureau manager. "In other instances there may be hidden clauses which change the meaning of the policy or increase its cost to the policyholder."

Foreseeing a Federal drain on the staffs of New York City hospitals, Mayor LaGuardia is backing a bill in the City Council permitting the employment of alien physicians, nurses, and interns who have declared their intention of becoming citizens.

Introduced by Councilman Anthony J. Digiovanna, Brooklyn Democrat, the bill would permit such employment up to July 1, 1942. Under the Lyons Residence Law the appointment of aliens to city posts is now forbidden.

A referee's report alleging that Doctors Hospital in New York City has engaged in "so-called charity" rather than in real charity, recommends that the institution be compelled to pay back taxes and interest of \$500,000.

The Boro Park General Hospital in Brooklyn

has changed its name to Brooklyn Doctors Hospital.

At a meeting of the Hospital Council of Albany on June 27, St. Peter's, Brady Maternity, Memorial and Albany hospitals announced increased room rates of approximately 50 cents a day to all private and semiprivate patients. A revision upwards of certain laboratory and other charges also was announced.

The Israel Zion Hospital of Brooklyn is opening a Residency in Pathology (approved by the Council on Medical Education and Hospitals of the A.M.A.) to physicians who have had a one-year general internship in an approved hospital. For further information applicant may write to the Superintendent.

Improvements

The town board of Sidney has voted to proceed alone to erect a hospital, after the town boards of Unadilla, Masonville, Bambridge, and Guilford failed to unite in a five-town project.

The Stevens Hospital at Granville plans to install 25 beds in the former Sheldon property and convert it into a hospital at a cost of \$40,000.

The Board of Commissioners of the Oneida City Hospital plan to build a 25-room addition if government aid can be secured.

Huntington Hospital contemplates a new wing

The American Legion Auxiliary's Salon 154, Eight and Forty, has given an iron lung to the Syracuse City Hospital.

The Flushing Hospital will soon install its much needed auxiliary battery lighting system for emergency use, the gift of the Douglaston Branch of the Women's Auxiliary of the Hospital.

TUBERCULOSIS AND MEDICAL PREPAREDNESS

"So far as tuberculosis is concerned, the cost in the last war has been at least \$959,000,000 just for vocational training, insurance, compensation, and hospital care. This figure does not include the cost of hospital construction. Today money is being spent at the rate of \$3,000,000 a month on tuberculous soldiers. Flatly, it costs around \$10,000 to induct a man suffering from tuberculosis and \$50 a month for the rest of his life, plus compensation benefits for his depend-

ents after his death. When you compare the above figures with the slight cost of making x-rays of the chests of all draftees it is only reasonable to believe that a considerable saving can be effected by the use of the x-ray. In addition to all this, we haven't counted the damage that the tuberculous soldier does in his contact with the other soldiers"—Donald B. Cragin, M.D., president, Association of Life Insurance Medical Directors.

Medicolegal

LORENZ J. BROSNAN, ESQ.

Counsel, Medical Society of the State of New York

Workmen's Compensation—Alleged Fraud in Physician's Report

THE statement that cases involving the rendering of medical care to an injured workman under the terms of a Workmen's Compensation Law sometimes lead to litigation of all sorts is borne out by a case recently decided by the highest court of one of the Southwestern States.*

The plaintiff, A, was in the employ of a county on a construction job. While at work he received an injury when some cinders fell upon him. He reported the accident to the State Industrial Commission, and it was determined that he was entitled to compensation payments, which he received for about nine months at the rate of \$90 per month. At the end of that time the Commission, in order to determine whether payments should be stopped, sent him to three physicians for the purpose of undergoing a physical examination. These doctors, who were regularly employed by the Commission, after examination reported that A was cured of the injuries that he had received in the accident and that the resulting ill effects had disappeared. Payments of compensation were thereupon terminated.

An action was brought by A, the injured workman, against the physicians who had examined him to recover the sum of \$100,000 as claimed actual damages and \$50,000 as claimed punitive damages. The charge in the complaint was that the defendant physicians had defrauded plaintiff of payment of compensation and that they had conspired with the Industrial Commission to prevent plaintiff from obtaining compensation to which he was justly entitled by means of a false report concerning plaintiff's physical condition and the causes of that condition. It was claimed that both the Commission and the doctors knew the report to be false.

The case was tried before a jury. Upon the trial, in his attempt to show that, at the time of the physical examination complained of, he was properly entitled to compensation, plaintiff gave certain testimony himself as to subjective symptoms and their effects. He called but one physician, and this physician merely asserted that some x-rays of plaintiff showed certain abnormalities but made no attempt to express an opinion that the abnormalities were due to the injury that plaintiff had sustained during the course of his employment. Plaintiff also called four lay witnesses, whose testimony, in substance, was that plaintiff had complained to them of his physical condition and his inability to work.

There was no testimony showing that the Commission had requested or desired a false report from the physicians or that the Commission had ever known their report to be false.

The Trial Court submitted the case to the jury, and a verdict of \$6,000 was returned in favor of plaintiff, divided as \$2,000 for actual and \$4,000 for punitive damages.

The defendants appealed from the judgment and, upon appeal, the Supreme Court reversed and directed judgment for defendants. In so ruling the Court said in the course of the opinion:

"The material allegations must be proved by a legal sufficiency of evidence. The gist of the action upon this theory is fraudulent representations by defendants to the Commission. Such representations may either constitute actual fraud, when the representations are, to the knowledge of the party making them, false, or else constructive fraud, when the party does not know their falsity, but makes them recklessly, when it is his duty to ascertain the truth before speaking. We consider the evidence from each standpoint.

"It must be remembered that the alleged false statements on which the action is based are not positive statements of fact. Therefore, in the opinion of defendants as medical experts, there was no compensable condition of plaintiff on May 9, 1938, as a result of the accident of the previous August 3. It is a well-known fact that medicine is not an exact science like mathematics, physics, or chemistry, but is peculiarly, and above all others known to man, an uncertain one, based on the opinion and best judgment of men who have made a life-long study thereof. Particularly is this true when the question arises as to the specific cause of a physical condition claimed to exist. In the present case, in order to establish actual fraud, it was necessary for plaintiff to show by clear and convincing evidence that the accident of August 3 was the cause of an existing physical condition on May 9, which entitled him to compensation under the law, and that the defendants knew this to be true."

"It is admitted there is no direct evidence that defendants knowingly made a false statement as to plaintiff's condition or the cause thereof, but much time was spent in arguing as to the evidential effect of the fact that defendants received compensation from the Commission for their services in making the examination of plaintiff. If this be proof of actual fraud, then every doctor and every lawyer who expresses an opinion, concerning the correctness of which a doubt may later arise, and receives a fee therefor, may be found guilty of fraud on that evidence alone. Plaintiff's counsel admit there is no evidence that the Commission wanted a false report, and, indeed, insisted that they did not, but desired only the truth. What conceivable motive, under such circumstances, was there for defendants to make a false report to the Commission?

"Fraud is never presumed nor can it be found to exist on a mere suspicion as to the possibilities thereof. It must be established

* *Rice vs. Tinsau* 112 Pac. (2d) 886

by clear and convincing evidence and plaintiff has completely and utterly failed to present evidence which would even raise a reasonable suspicion of actual fraud."

The Court also said

"We come next to the question of constructive fraud. Even though defendants had deliberately, knowingly, and intentionally made a false report, we think that if they failed to use proper care in making their investigation as to plaintiff's condition, it would have been constructive fraud. But the test of proper care in a case like this is the same as in an action for malpractice. It is whether the physician possessed and exercised the same care in the performing of his duties as was ordinarily possessed and exercised by other physicians of the same class in the community in which he practiced. Since the test is in regard to the knowledge and conduct of other physicians, it is

practically universally held that only physicians are competent witnesses as to what that standard of knowledge and conduct is. There is not even a suggestion in the record that each and all of the defendants did not possess and exercise not only the ordinary but the highest degree of skill in their profession in their examination of plaintiff. There is no evidence whatever that there was any constructive fraud.

"Since plaintiff's counsel admit there was no evidence of a conspiracy between the Commission and defendants to have a false report made, and since the evidence utterly fails to raise even a reasonable suspicion that defendants were guilty of either actual or constructive fraud in their report to the Commission, which admittedly desired only to do that which the law required, the judgment cannot be sustained."

Inquiries

YOUR counsel received the following inquiry from the Superintendent of a hospital

"Dear Mr Brosnan

"Could you advise us if there is a form to be signed at the admission of a patient whereby he or she would waive claims for any accidents that may occur while an inmate in an Institution. Also a similar form relative to waiving liability should injuries occur to visitors of patients

Very truly yours,"

Your counsel's reply was as follows

"Dear Sir

"Generally speaking an institution cannot legally in advance of an accident secure a release from the injured party. This would apply to patients and visitors. Perhaps some institutions do have the patient or visitor stipulate that the institution shall be relieved of the responsibility of any injuries received by the patient or visitor irrespective of negligence on the part of the institution or its employees, but, if so, it is generally on the theory that such releases might act as a deterrent against suit being brought since the injured party might feel that this release will deprive him of any cause of action and would not go to the trouble of consulting a lawyer

"Hospitals, of course, have forms which are perfectly legal, i.e., forms the patient signs consenting to operation and other forms by which patients release the hospital from responsibility if they leave contrary to doctors' orders and by so doing assume the risk of an injury that they may sustain as a result of the failure to follow the orders of the doctors or hospital authorities

"I trust that this answers the inquiry contained in your letter

Very truly yours,"

Your counsel received the following inquiry

"Dear Mr Brosnan

"I have an assistant coming in my office September 1. He is a graduate of University of , and just completed two years internship in this state. In June he took his state boards here and just found out he failed in one subject

"I would like to know if he can work in my office and make house calls, pending his receiving his license to practice.

Yours very truly,"

Your counsel's reply was as follows

"Dear Doctor

"I note that you inquire as to whether a medical school graduate who has completed two years internship and who has taken his state boards but failed in one subject may properly work in your office and make house calls pending his being licensed to practice

"I believe that it would be extremely dangerous for you to permit this young man to do the work referred to since there can be no question that under the definition of the practice of medicine as set forth in the Education Law he would be engaging in the practice of medicine without a license and would be subject to prosecution for so engaging in practice.

"While the Education Law makes specific provisions whereby one who has not yet obtained his license may serve an internship in a hospital and there actually do the work of a licensed physician, there is no provision in the law permitting an unlicensed physician to engage in the practice of medicine as an assistant to a licensed physician in private practice

"I strongly advise against the proposed arrangement, since not only the young man may encounter difficulties but the situation might lead to disciplinary proceedings being brought against you upon charges of aiding and abetting an unlicensed practitioner

Very truly yours,"

A physician is an unfortunate gentleman, who is every day called upon to perform a

miracle, namely, to reconcile intemperance with health.

—Vollaire

Public Health News

Sulfathiazole to Be Distributed by the New York State Department of Health for the Treatment of Gonococccic Infections*

ON OR about August 1, 1941, the New York State Department of Health will distribute sulfathiazole for the use of registered doctors of medicine, and hospitals and clinics, for the treatment of gonococccic infections. *The drug will be available for the treatment of all patients irrespective of their financial status.* Packages of forty tablets (0.5 Gm. each) may be obtained upon request from regular laboratory supply stations which are now distributing sulfathiazole and sulfapyridine for the treatment of pneumococccic infections.

As in the case of sulfonamides distributed for the treatment of pneumococccic infections, sulfathiazole will be dispensed in bottles bearing the manufacturer's label in a form that may be detached, leaving on the package as it finally reaches the patient a label upon which the physician has written his instructions. The label will, however, carry an identifying number that will not be intelligible to the patient. It is recommended that the manufacturer's label bearing the name of the drug be detached in order to discourage the possibility of self-medication should any of the drug be left after treatment of a case for which it was prescribed.

How to Obtain the Drug

The request slip now used for sulfathiazole and sulfapyridine has been revised for use as well in requisitioning sulfathiazole for the treatment of gonococccic infections. In requesting the drug for gonorrhea cases, it is necessary only to check the slip accordingly. The name and address of the patient and bacteriologic findings may be omitted.

The above instructions apply only to requests for sulfathiazole for the treatment of gonorrhea. Additional data including the name and address of the patient, date of onset, bacteriologic findings, and place of examination, if done, must be supplied when requesting sulfonamide drugs for pneumococccic infections.

Since prescriptions are required in the dispensing of sulfonamides, requests for these compounds for any purpose must be signed by the physician.

Warning

In obtaining the sulfonamide drugs it is essential that physicians specify the infection for which the drug is desired, since individual packages for gonococccic infections differ in size from those dispensed for use in pneumococccic infections.

* Announcement received July 17 from the Director of the Division of Syphilis Control, New York State Department of Health.

THE PLACEBO

The placebo has no place in medicine unless it be given in answer to the cry of an anxious family that some medication be given. Prescribed solely to satisfy a patient, such treatment is a therapeutic lie and lays a foundation for mistrust or disillusionment, and is a poor substitute for re-education. More than thirty years ago, Dr. Richard Cabot cited an illustrative case to a group of us who were students at the Massachusetts General Hospital. A neurotic young woman came to the dispensary claiming that she had a frog in her stomach. The diagnostic study showed nothing physically wrong. Perhaps pressed for time, lazy, or possibly mistrustful of his therapeutic ability, the physician on duty prescribed methylene blue,

indicating that the medicine would dissolve the amphibian. He told the lady proof of the successful action of the drug would be visible to her—she would void green urine. She did and was convinced! But the therapeutic triumph had only a brief day. Within a short time the patient returned more distressed than ever.

"Doctor, my first frog was a female—she laid eggs before she was dissolved, and now the tadpoles make me feel worse than their mother did!" Nor could she be convinced that her first gastric tenant was a male!—Austrian, Charles R., M.D. *New England J. Med.* 223:699 (October 31) 1940, quoted in *North Carolina Medical Journal*.

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Lipidoses Diseases of the Cellular Lipid Metabolism. By Siegfried J Thannhauser, M.D. Edited by Henry A Christian, M.D. Octavo of 370 pages, illustrated. New York, Oxford University Press, 1940 Cloth, \$6 00

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The system itself has been worked out in Borstal, England, and is considered by many criminologists the best method of dealing with youthful offenders. The organization, personnel, and the day-by-day life in various Borstal institutions is effectively portrayed by the authors, so that one may contrast the methods used there with those in our own penal institutions. The Borstal System is considered more humane and corrective and is said to lower the incidence of readmissions to penal institutions.

The book is an excellent exposition of the treatment of juvenile delinquents and deserves the careful attention of all who are associated with this type of work. It is to be particularly recommended to sociologists, psychiatrists, and criminologists.

JOSEPH L ABRAMSON

The Medical Clinics of North America. May, 1941. Volume 25, Number 3 (New York Number) Octavo. Illustrated. Philadelphia, W B Saunders Co., 1941 (Six numbers a year). Cloth, \$16 net, paper, \$12 net.

A number of helpful articles appear again in this latest number of the *Medical Clinics of North America*. Robert Frank discusses homonology critically, Studdiford has a good paper on puerperal sepsis. There is a fine review of psychiatry by Lichtenstein and a useful note on therapy by Wortis. There are, in addition, several fine papers on practical endocrine subjects.

ANDREW M BABEY

Natural Resistance and Clinical Medicine By David Perla, M D, and Jessie Marmorston, M D. Quarto of 1,344 pages. Boston, Little, Brown and Company, 1941. Cloth, \$10.

This is an admirable and unique work crammed full of a wealth of knowledge dealing with the subject under consideration. Based on the results described in more than 5,000 contributions to scientific literature and the combined researches of the authors, it embodies a broad survey of resistance and its relation to medicine. The completeness of its scope is manifested by a glance through its table of contents, which includes phases, such as heredity, age, sex, role of endocrine glands, humoral and cellular mechanisms, liver, body surfaces, and nervous systems, diet, certain depression states, and climates in their relationships to resistance. The final section deals with the clinical aspects of resistance.

In each section the theme is treated systematically and scientifically, with detailed and full citations of the literature. A mass of pertinent facts of work gathered in comparative research from plant life, as well as from innumerable species of the animal kingdoms, thus has been made available in compact form. These have been arranged so that the reader gradually arrives at a summation in which the authors' conclusions and the application of them have

been clearly and lucidly presented. Each chapter is finished with a summary and bibliography. The text is supplemented by many graphs and tables, but strangely enough no illustrations adorn the text. It would be impossible to review this monumental treatise in its entirety, since the subject matter covers so vast a domain. It shows the earmarks of painstaking and careful research both in the laboratory and in the library. Neither the progressive physician nor the scientist in the laboratory, be he a physician or lay individual, can afford to be without this work, since it touches in every phase of medical progress all the fields that deal with resistance to disease and the maintenance of health and life itself. It is a worthy monument by an indefatigable worker who sacrificed himself for humanity, and by his helpmeet who was a partner with him in this full contribution to our knowledge.

MAX LEDERER

Clinical Pellagra. By Seale Harris, M.D. Quarto of 494 pages, illustrated. St. Louis, C V Mosby Co., 1941. Cloth, \$7.00.

In the pages of this volume will be found a great deal of useful information about pellagra. The early works are faithfully recorded and generous credit is given to the pioneer students in England and Italy who described the disease at least seventy-five years before the first cases were recognized in the United States. It was not until 1910 that the disease had become a serious problem in the south. The earlier theories as to the cause of the disease are gone into in detail, so much that some of the material becomes repetitious. The reader also gains the impression, perhaps erroneously, that the book reflects some of the rivalries, personal and sectional, that arose during the search for the cause and cure of pellagra. All this makes the volume longer than it need be. Nevertheless, the student and practitioner can find what he wants about the present state of our knowledge with specific directions as to the treatment of this disease. The working bibliography at the end of the book should prove useful.

EDWIN P MAYNARD, JR.

Introduction to Psychobiology and Psychiatry A Textbook for Nurses. By Esther L Richards, M D. Octavo of 357 pages. St. Louis, C V Mosby Company, 1941. Cloth, \$2.50.

This book is primarily intended as a textbook for nurses. As such, it misses the mark, since we doubt that the average nurse without any preliminary knowledge of psychiatry will be able to follow intelligently the author's exposition. The author, who is a disciple of Dr Adolf Meyer, presents the material from the standpoint of the psychobiologic concepts of Dr Meyer and stresses the need for personality studies. The questionnaire method evolved by Dr Meyer is used to help the nurse determine her qualifications for nursing.

The author is inclined to be verbose, but the material has been well presented. The book is better suited for the general practitioner who desires to learn something of psychiatry and psychobiology than for the average nurse.

JOSEPH L ABRAMSON

(Continued on page 1688)

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[Continued from page 1686]

From Thirty Years with Freud. By Theodor Reik. Translated by Richard Winston. Octavo of 241 pages. New York, Farrar & Rinehart, Inc., 1940. Cloth, \$2.50.

The author is well qualified to write about Freud and his work since he was associated with Freud for thirty years. Because of this he brings to us many intimate facts about the founder of psychoanalysis.

The first part of the book deals with Freud and his followers. This and the preface afford us many details of Freud's life which have not generally been known.

For the common reader this portion of the book will be most interesting, especially when the author gives some intimate anecdote of Freud, and presents him as a warm, likeable human being, rather than merely a name.

The latter part of the book deals with Freud as a critic of our culture. Here is included psychoanalytic interpretations, which are rather difficult to follow except for those versed in psychoanalysis. Further, when the author finds it necessary to come to the defense of psychoanalysis and indulges in psychoanalytic terminology, the book will be found rather dull by the average reader. However, the psychoanalyst and the psychiatrist will undoubtedly find much of value in the discussions by the author. This is especially so because there is included an unknown lecture of Freud's.

One wishes that the author had included more information concerning his personal contacts with Freud, so that we might have a more complete record of an individual who is almost legendary and who has been a source of so much controversy in the psychological world. Lay people, as well as medical men, would enjoy knowing more of Freud as a man. On the whole, however, the book adds something to our knowledge of Freud, though his complete biography remains yet to be written.

J L ABRAMSON

Anus, Rectum, Sigmoid Colon. Diagnosis and Treatment. Second edition. By Harry E Bacon, M D. Octavo of 857 pages, illustrated. Philadelphia, J B Lippincott Company, 1941. Cloth, \$8.50.

Seventeen months after its first printing, this book is in its second edition. The literature has been covered most thoroughly as evidenced by the voluminous bibliography which is appended at the end of each of the twenty-four chapters. Although different views and methods are outlined for various disorders the author indicates his choice and the reason for so doing, and he concludes practically every chapter with a summary of treatment.

New illustrations have been incorporated in the present edition, and some of the older ones have been replaced by new figures. In addition to that, new material has been added, such as Devine's defunctioning colostomy and the sulfanilamide treatment of chronic ulcerative proctosigmoiditis and in the sequela of lymphogranuloma venereum.

Although the author employs the term "lymphogranuloma venereum" in the preface to the second edition, it does not appear in the index—the term "lymphopathia venereum" is used in-

stead. This will undoubtedly be remedied in a later edition.

As the present reviewer stated in his review of the first edition "An awakening to the realization of the magnitude of the subject of proctology is in store for those who acquire this book. It should prove of inestimable value to anyone interested in the subject of proctology."

A. W. MARTIN MARINO

Practical Neurological Diagnosis with Special Reference to the Problems of Neurosurgery. Second edition. By R. Glen Spurling, M D. Octavo of 239 pages, illustrated. Springfield, Charles C Thomas, 1940. Cloth, \$1.00.

The first edition was well received. In his second edition Dr Spurling has adhered to the aim of his first work, viz, "to present a simple account of the principles of neurological diagnosis."

The subject matter is presented in simple, clear, concise fashion. Obscurity of statement is avoided by the orderly, logical, if somewhat dogmatic, method of statement. Emphasis is placed on the physical examination. Above all, the proper manner of eliciting findings is stressed, and a detailed description of how each test should be performed is given. The early student and general practitioner of medicine will be delighted with this small compact volume.

HAROLD R. MERWARTH

The 1940 Year Book of Pathology and Immunology. Pathology edited by Howard T Karsner, M D, and Immunology edited by Sanford B Hooker, M D. Duodecimo of 688 pages, illustrated. Chicago, The Year Book Publishers, 1940. Cloth, \$3.00.

This is the most recent of the Practical Medicine Year Book Series, being the first attempt at publication dealing with these two subjects. The field of pathology is ably reviewed by Dr Howard T Karsner, professor of pathology, Western Reserve University, Cleveland, and that of immunology by Dr Sanford B Hooker, professor of immunology, Boston University School of Medicine.

This volume follows the same general form of the current series. It meets the need of the laboratory physician, who will welcome the terse but comprehensive reviews of both compilers, as well as the needs of the various specialists who in the course of their medical contacts feel the necessity for an up-to-the-minute review of advances being made in laboratory fields. For both these reasons the volume possesses practical, as well as educational, value to every physician.

One pleasant feature of this issue, which sets it apart from any other abstracted or condensed review, lies in the comments of the editors in the form of pertinent and critical footnotes.

The section on pathology, because of the nature of the subject, more readily lends itself to the use of illustrative material. The photographs of gross and microscopic specimens are unusually faithful reproductions.

The volume can be highly recommended to a prominent place in the doctor's bookshelf of current reviews.

THEODORE S CURPHEY

[Continued on page 1690]

Hospitals and Sanitariums

Institutions of Specialized Treatments

VISITING DAY FOR PHYSICIANS

Sanitariums have been in existence for so many years that it is to be expected that private practitioners may well take them for granted. True, many physicians perhaps have during the earlier years of their careers, visited one of these institutions to see what one was like. They may have done so with a purpose in mind and an anticipation of having to refer a patient to some sanitarium some future day.

But times have changed and with them, so have the sanitariums. The sanitarium of 1910, 1920 or even 1930 is as incomparable with our modern institution as a vehicle of today is with the vintage cars of two or three decades back.

The sanitarium that our more mature physicians may remember inspecting when their futures were still an enigma, would hardly be the place they would send patients today had it not kept pace with the progress of treatment.

The improvements in methods of receiving patients, treating them and caring for them in every way to complete the work of the family physician are interesting as well as practical from the standpoint of modern medicine.

Young physicians, too, would gain a lot of invaluable information about sanitariums if they would take a little time out to study personally the several types of institutions that can be of service to them and their patients.

Of course, you do not personally analyze every brand of medicine you prescribe, so it might seem a little inconsistent to do that very thing in the matter of places where a convalescent or a chronic might be sent. In the medicine, however, you know it has all the ingredients required to treat the particular illness of your patient. In sanitariums there are many "ingredients" that you are sure of as well, yet you would find many more things to impress you and instill confidence if you could see them in actual operation.

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It might be an idea, on your next motor trip into the country to look up one of the JOURNAL advertisers in the sanitarium section. It will be worth the half an hour or so that you squeeze out of a brief day off.

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[Continued from page 1688]

Lectures on Diseases of Children By Sir Robert Hutchison, M.D., and Alan Moncreiff, M.D. Eighth edition. Octavo of 471 pages, illustrated. Baltimore, Williams and Wilkins Co., 1940. Cloth, \$6.75

This is the eighth edition of a practical and an original work on pediatrics. It contains a collection of lectures on various diseases and conditions of interest to all who handle babies and children in their practice.

The chapters on rickets, the clinical examination of the child, behavior problems, rheumatism, constipation, and tuberculosis, deserve special mention.

In a general way it may be said that this is the work of two men who must have had a tremendous amount of clinical experience with children. However, in order to conserve space and in the attempt to keep the pages down to a given number, in order to make this book compact while at the same time mentioning as many disease entities as possible, the authors were forced to omit the necessary detailed information that would make this book more serviceable to pediatricians as well as to the general practitioner.

HARRY APPEL

The Endocrine Function of Iodine By William T. Salter. Octavo of 351 pages, illustrated. Cambridge, Harvard University Press, 1941. Cloth, \$3.50

The author makes a successful effort to show that iodine is a bridge between biochemistry and endocrinology. As such, he formulates a concept that there is an endocrine balance and that some hormones are either stimulants or antidotes, thus preserving health and personality and keeping this balance well poised. This he arrives at by a careful study of the iodine content of all glands and their interrelationship.

The book, although scientific and technical, is written in popular form. The newer iodine studies are particularly directed toward a differentiation between inorganic iodine content and the thyroid hormonal iodine content in the blood and tissues. From his studies he concludes that the circulating blood iodine content can be of diagnostic value in distinguishing thyroid disease and other related glandular conditions.

This book is a valuable addition to the studies of endocrine and metabolic diseases and is highly recommended by the reviewer.

MORRIS ANT

The Mask of Sanity: An Attempt to Reinterpret the So-called Psychopathic Personality By Hervey Cleckley, M.D. Octavo of 298 pages. St. Louis, C. V. Mosby Company, 1941. Cloth, \$3.00

The book, as its subtitle implies, is an attempt to reinterpret the so-called psychopathic personality. While considerable progress has been made in understanding the nature and causes of mental disorders, very little has been discovered that would enable one to get a clear-cut idea of the mechanisms underlying the disorder that is generally called constitutional psychopathic inferiority. The law does not recognize this disorder as a disability limiting

legal responsibilities of people suffering from it. The various state hospitals cannot keep these people against their will because they are not committable in the usual sense of the term. The result is one of a chaotic condition resulting in disaster to themselves and untold misery and despair to their families.

The author presented several case histories in his attempt to describe these persons as they actually appear in life. He stresses the fact that a mask of perfect sanity conceals the real inward state of all persons so disordered. In view of the lack of serious attention given to this large number of mentally sick persons, the author calls attention to the fact that the psychopath stands today as the forgotten man of psychiatry.

The book is a splendid presentation of the subject by one who has had a large experience in psychiatry and who has given special attention to the psychopath. It is written in a lucid and arresting style, incisive and emphatic, so that when one begins to read the book one can hardly let go of it. It is a positive and a most valuable contribution to psychiatry. The author deserves credit for dealing so ably with such a difficult subject. It is recommended to all psychiatrists, sociologists, social workers, judges, and lawyers. It will find a wide circulation among all intelligent and socially minded people.

IRVING J. SANDS

Germes and the Man By Justina Hill. Octavo of 461 pages. New York, G. P. Putnam's Sons, 1940. Cloth, \$3.75

It is no easy matter to explain to the layman the remarkable discoveries of modern medical science, especially in such highly technical fields as those of bacteriology, immunology, and physiology. The author of this interesting book has succeeded remarkably well in describing not only many of the pathogenic bacteria and their mode of action in the human host but also the wonderfully complex mechanism by which the body defense operates. This is accompanied by an accurate account of the remedial measures that research has discovered, both for prevention and cure. While the book primarily concerns pathogenic bacteria and not viral infections, there are included also appropriate sections on the healing of wounds, and on germicides, disinfectants, and antiseptics.

Historical aspects of developments in our knowledge in all these important special fields are emphasized, and properly so, and attention is drawn to the parts that various contributors have played.

The subject matter is well selected and it is quite definitely abreast of the more recent work. Diligence and admirable care in bibliographic research are in constant evidence, and this, in conjunction with the 28 pages of bibliographic references, is a noteworthy innovation, which, it is to be hoped, will not go unnoticed.

While the author writes in an informal style, she has filled her book with instructive and useful information explaining technical terms in non-technical language. The statistical data included is of recent publication and well illustrates the point stressed. The many quotations are from the most recognized sources.

This is a volume that should not be read.

[Continued on page 1692]

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[Continued from page 1690]

lightly and then laid aside and forgotten. It deserves a place as a reference source for the average intelligent reader.

JOSEPH C REGAN

Essentials of Dermatology. By Norman Tobias, M D. Octavo of 497 pages, illustrated. Philadelphia, J B Lippincott Co., 1941. Cloth, \$4.75.

Every now and then there is published a book combining all the elements that, when taken together, seem to make one wish it were of one's own making. Such a book is Dr Tobias' handbook of dermatology, and the most certain way to enjoy it is to possess it, since it contains in the most comprehensive manner exactly what its title calls for—the essentials of the study and practice of dermatology.

Aside from containing the most up-to-date knowledge at present available in this era of intensive advancement, the author has taken great pains to cover each subject with sufficient fullness to provide the reader with a complete working knowledge as to the etiology, pathology and most approved methods of treatment. Under the title of "Herpes Zoster," Dr Tobias has given well-deserved credit to the Ruggles treatment—the intravenous use of sodium iodide—first suggested by Dr E Ruggles of Rochester, New York, in the March, 1931, issue of the *Archives of Dermatology and Syphilology*.

Especially valuable to the student and general practitioner are the superb photographic illustrations which mean so much in the differentiation and correct diagnosis of diseases that are almost entirely objective in their symptomatology. The modern classification of diseases is helpful to the student, and the typography and general makeup of the volume is most commendable.

NATHAN THOMAS BEERS

An Introduction to Pharmacology and Therapeutics. By J A Gunn, M D. Sixth edition. 16mo of 242 pages. New York, Oxford University Press, 1940. Cloth.

Gunn's well-written introduction to pharmacology herewith enters its sixth edition and, notwithstanding necessary revision, continues to remain a short, reasonably priced volume. It continues to serve its purpose well. It is not intended as a textbook and will probably find its widest usefulness in this country as "a book which a student can read in the vacation before attending lectures," as Gunn intended. The fact that this little volume is written by an Englishman should not deter anyone here from purchasing it, since U S P equivalents are all given next to those of the British Pharmacopoeia.

MILTON PLOTZ

Schizophrenia in Childhood. By Charles Bradley, M D. Octavo of 152 pages. New York, The Macmillan Company, 1941. Cloth, \$2.50.

The author is medical director of the Emma Pendleton Bradley home. In this book he has reviewed the subject of schizophrenia in children beginning with a historical survey of the literature. Prior to 1900, little if anything was

written concerning schizophrenia in childhood. Until 1925 the subject was discussed in kraepelinian terms, which were applicable to adults as well as children. Since then, more significant contributions have been made by such authors as Meyer and Bleuler.

Over a period of eight and one-half years the author has observed 4 children under 13 with definite schizophrenic psychoses out of a total of 250 children admitted for behavior disorders.

In childhood, schizophrenia is two to three times more common in boys than girls. The diagnosis has been made in patients as young as 2½ to 4 years. The major symptoms are diminished interest in the environment, emotional disturbances, symptoms of regression to more immature and simpler levels of interest, alterations of motor behavior, speech disturbances, disturbances of thinking—overt behavior such as seclusiveness, day dreaming, diminution in number of personal interests, and physical inactivity, and hallucinations and illusions.

There are subsequent chapters on the etiology of the disease which is still unknown. Electroencephalography has afforded a new approach in laboratory diagnosis of this disease, although no specific pattern has yet been evolved. Psychologic studies have been done and indicate a progressive lowering in the I Q, with better results on tests of speed than those of accuracy and better verbal than performance material.

There is a list of essential points for diagnosis. The prognosis is uniformly bad. The final chapter concerns itself with the practical concepts of childhood schizophrenia. There is also a bibliography.

This book should be profitable reading for the profession.

STANLEY S LAMM

Strange Malady. The Story of Allergy. By Warren T Vaughan, M D. Octavo of 268 pages, illustrated. New York, Doubleday, Doran & Co., 1941. Cloth, \$3.00.

In this work the author seeks to help the inquiring patient to understand the peculiar nature of his allergic illness and to comprehend the immunologic basis of his "strange malady." Unlike most of the other books of this type it is written for the intelligent reader and is not too elementary.

Interspersed with theoretic material are interesting case histories, witty comments, and clever illustrations. These capture and hold the reader's interest in a subject that, under ordinary circumstances, is technical and boring to the lay individual.

An interesting historical section introduces the subject. The author then deals with the recognition, treatment, and prevention of the various allergic conditions. An excellent section on allergens and their hidden sources of contact is included.

The author leans heavily on Ehrlich's side-chain theory for the explanation of the immunologic phenomena in allergy. Clever diagrams and sketches illustrate these theoretic concepts. Certain liberties are taken with the side-chain theory for the sake of clarity and interest in presentation, but the end achieved justifies these infractions of scientific fact.

[Continued on page 1694]

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In his book, *Diet and Pleasure*, Paul Rebdux almost convinces his readers that illness is not such a bad experience after all. In his chapter "I Must Take a Dose," the author remarks

"As I said in the beginning of this book, it is not so unpleasant to be ill as is often pretended First, you feel an uneasiness against which you fight You tell yourself that you are energetic You do not want to take care of yourself You snap your fingers at fever At last you give in to the persuasion of those who care for you Very well, call the doctor The doctor arrives He feels your pulse, looks at your tongue, leans his head on your stomach, and prescribes something for you.

(Continued on page 1695)

"The doctor must prescribe something, otherwise you would consider the fee he asks for his visit insolently excessive In public opinion, those who have nothing prescribed for them cannot be ill. And it is revolting for people who are not ill to have to pay for the doctor's visit Only a great specialist, honored and influential, is able to relieve the patient's family by saying, 'There is nothing the matter with you, sir' If anyone else talked like this he would lose his practice"

Having absolved the medical profession from having to humor patients and their immediate relatives, Rebdux settles into the subject of taking a dose

"The taking of a dose," he muses, "can be considered as the essential and practically the only disadvantage of an illness I do not mean, of course, a serious illness

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Say you saw it in the NEW YORK STATE JOURNAL OF MEDICINE

[Continued from page 1692]

The deft personal touch of the author and his informal method of presentation contribute much to make this book a success. It will furnish absorbing and instructive reading to the physician as well as to his intelligent patients.

MATTHEW WALZER

How to Prevent Goiter By Israel Bram, M.D. Octavo of 182 pages, illustrated. New York, E. P. Dutton & Co., 1941. Cloth, \$2.00.

The purpose of this book is to "set forth the simple rules of physical and mental conduct which help prevent disturbances of the thyroid." The text contains a great deal of general information and advice for the potential and mildly hyperthyroid patient. However, it is not offered as a substitute for the physician. Perhaps the most redeeming features are the repeated warnings to the layman of the dangers of self-medication by the use of thyroid extract and iodine in any and all forms of goiter. Chapter VIII by Dr. Robert Oleson, senior surgeon, United States Public Health Service, on "Endemic Goiter" is, in the reviewer's opinion, one of the best chapters. Dr. Oleson warns against the wholesale administration of iodine prophylaxis. Individualized treatment rather than routine "wholesale methods" are stressed even in so-called "goiter belts."

The author's rationalization regarding the "Prevention of Tumor Goiter" leaves much to be desired. He is on safer ground when he discusses "Prevention of Malignant Goiter."

Perhaps the weakest parts of the text are Chapters XI to XIV, dealing with Graves' disease (exophthalmic goiter). The impression is conveyed that surgical intervention in Graves' disease should be the exception, rather than the rule. Dr. Bram evidently has more faith than the reviewer in so-called medical treatment of hyperthyroidism.

The text is written primarily for the patient and hence is not recommended for the physician.

ARTHUR GOETSCH

The Parasites of Man in Temperate Climates. By Thomas W. M. Cameron. Octavo of 182 pages, illustrated. Toronto, University of Toronto Press, 1940. Cloth, \$3.00.

The author has succeeded in compressing a large amount of useful information about animal parasites into the limited compass of 182 pages. The book is designed for the practitioner and not for the student of tropical medicine or the parasitologist. To gain brevity and to simplify the subject for the man in general practice, a didactic style is followed which, in places, leads the author into direct misstatements. One example is the statement on page 17 that *Endamoeba coli* never contains engulfed red blood cells, another, that *Plasmodium vivax* is the only species used in induced malaria for pyretic purposes (page 23). The general practitioner is usually in search of detailed practical information on clinical diagnosis and treatment. In the present volume these subjects are not always adequately presented.

The illustrations are good but for the most part lack keys to the magnification used. The bibliography is brief but useful. A glossary

would spare the practitioner the necessity of referring to a medical dictionary for the meaning of terms such as "strigoid" (p. 37).

In summary, this reviewer feels that in certain important respects the volume fails to achieve its proclaimed purpose—to give the practitioner information he requires—but it is helpful to have the subject summarized as Professor Cameron has done and future editions will be looked for with interest.

ELLISTON FARRELL

Williams Obstetrics. A Textbook for the Use of Students and Practitioners. By Henricus J. Stander, M.D. Eighth edition. Octavo of 1,401 pages, illustrated. New York, D. Appleton-Century Company, 1941. Cloth, \$10.

In this eighth edition of *Williams Obstetrics*, Stander comes into his own, for this standard textbook has been almost completely rewritten and now reflects his own student teaching at Cornell. Three new chapters have been added—those on diseases and abnormalities of the newborn, contracted pelvis, and sudden death and maternal mortality.

The chapter on puerperal infection written by Douglas is extraordinarily good and easily is the best and clearest exposition of this topic that we have ever seen. The toxemias of pregnancy are classified as recommended by the American Committee on Maternal Health. It is interesting to note that Stander has not yet abandoned his "low reserve kidney." His great interest in the biochemistry of eclampsia continues. The text on classification of pelvis with the new roentgenography is excellent.

The entire book is excellent typographically with beautifully colored plates, sensible, orderly arrangement, a good index, and exceptionally complete and live bibliographies. Though Stander says that he had approached the first revision of Williams' textbook some six years ago "with some hesitation, and a certain amount of misgiving," that edition was an excellent textbook on obstetrics for medical students, practitioner, and specialist. This one is better and is highly recommended.

CHARLES A. GORDON

Applied Neuroanatomy. Part I—The Spinal Cord. By Rafael Hernandez, M.D. Quarto of 123 pages, illustrated. Nashville, Tennessee, Elm Hill Road and Arlington Avenue, The Author, 1941. Paper, \$3.50.

The book is the outgrowth of a series of lectures which the author has delivered to medical students in his capacity as professor of neurology at Meharry Medical College, Tennessee. It differs, however, from the usual book of this type in that the author has attempted to correlate clinical neurology and neuroanatomy.

The book is profusely illustrated with original drawings which definitely enhance its value. Controversial subjects have been treated lightly, but an adequate bibliography has been appended for those who care to follow the various subjects in greater detail.

In order to make the book more economical and within the financial means of the student, a special format (lithoprinting) has been used. This in no way detracts from the usefulness and

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last you have time to read difficult authors, such as Marcel Proust. You can read the old books you loved in youth. Daudet, Zola, or the elder Dumas. You can rout the importunate by a telephone message to the effect that you are ill. You need not answer letters. And, lastly, you can watch people hurrying by the window to places they dislike, on business that bores them, while you remain at home, beautifully warm in bedroom slippers beside the fire, fed on light dishes, drinking delicious drinks redolent of woods and fields."

But, sums up this author

"Alas! however slight these illnesses may be, there is always the same disadvantage

" 'A little purge will do you good,' said the doctor "

Rebdux then suggests a means of taking a purge without too much unpleasantness. He suggests trying the principle of giving the papillas an anesthetic—with above all things, *cognac*

And perhaps that is his prescription for enjoying medical régimes

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value of the book. It can be highly recommended to medical students and to all practitioners who desire a comprehensive, concise, fundamental knowledge of neuroanatomy.

JOSEPH L. ABRAMSON

The Avitaminoses. The Chemical, Clinical, and Pathological Aspects of the Vitamin Deficiency Diseases. By Walter H. Eddy, Ph.D., and Gilbert Dalldorf, M.D. Second edition. Octavo of 519 pages, illustrated. Baltimore, Williams & Wilkins Co., 1941. Cloth, \$4.50.

This excellent work covers not only the subject of avitaminoses as the name implies, but the entire subject of vitamins, their chemistry, pathology, function, clinical effect of mild and extreme deficiencies, and how to prevent or treat them.

The chapter on cellular oxidation clarifies for those not already familiar with the subject the role that vitamins play in metabolism. In the chapter on vitamin requirements, vitamin D dosage on which a vast literature exists is treated rather superficially. The authors realize the difficulties encountered in trying to correlate experimental evidence on animals with clinical application of that evidence in man. They realize, too, that the vitamin control of food depends on a variety of factors—source of supply, method of transportation and storage, and preparation for human consumption.

This is a fine book which must have required a tremendous amount of painstaking and co-ordinated effort. It should be a favorite with the clinician as well as the biochemist. For the benefit of those who desire further information a voluminous literature is appended to each chapter.

BENJAMIN KRAMER

Hemorrhagic Diseases. Photo-Electric Study of Blood Coagulability. By Kaare K. Nygaard. M.D. Octavo of 320 pages, illustrated. St. Louis, C. V. Mosby Company, 1941. Cloth, \$5.50.

Nygaard is a pioneer who in this monograph makes a herculean effort to depict graphically the much complicated coagulative mechanism not unlike the electrocardiogram.

These graphs are produced photoelectrically as fluid blood changes to solid blood. A well-ordered apparatus does the trick. A knowledge of mathematics, physics, biology, and chemistry is essential to a thorough understanding of this valuable treatise. The book is, therefore, recommended to advanced students of the coagulation problem and should grace the shelves of all research laboratories. It is thoroughly inspiring.

MAURICE MORRISON

Psychiatric Dictionary with Encyclopedic Treatment of Modern Terms. By Leland E. Hinsie, M.D., and Jacob Shatzky, Ph.D. Octavo of 559 pages. New York, Oxford University Press, 1940. Cloth, \$10.50.

This is a medium-sized book of 559 pages. As the title indicates, it is devoted substantially to psychiatric terms and expressions, but it also includes terms found in related fields—namely, neurology, constitutional medicine, genetics and eugenics, mental deficiency, forensic psychiatry,

social service, nursing, and occupational therapy—in all, about 7,500 definitions. The names of individuals outstanding in their respective fields are given with pertinent facts relative to their theories and accomplishments. The span of time covered is from Hippocrates up to the present. With the manner of treatment and numerous cross references and guides to pronunciation one finds this dictionary convenient for quick reference. It can be recommended.

A. E. SOPER

Born That Way. By Earl R. Carlson, M.D. Duodecimo of 174 pages. New York, John Day Company, 1941. Cloth, \$1.75.

This book is an autobiography of one individual's successful attempt to overcome the handicap of an injury at birth through painstaking perseverance. Dr. Carlson is one of the best known authorities on the care of cerebropastic children. His work at the Columbia Medical Center has won him national fame.

In the present work the author relates his experiences from childhood through adult life. This book is of particular interest to doctors because there are suggestions, made by the author from his own experiences, which, if carried out by the physician, would make for marked improvement on the part of the patient suffering from cerebropastic paralysis.

STANLEY S. LAMM

The New International Clinics. Original Contributions, Clinics, and Evaluated Reviews of Current Advances in the Medical Arts. Edited by George M. Piersol, M.D. Volume I, New Series Four. Octavo of 304 pages, illustrated. Philadelphia, J. B. Lippincott Company, 1941. Cloth, \$3.00.

The feature of this issue of *International Clinics* is a symposium of medical clinics from the Yale School of Medicine. All of these clinics and the review of the present status of immunization procedures for the prevention of certain communicable disease by Veeder and Rohlfing are excellent. The original contributions, with the exception of a long-winded and weirdly contributed article on cerebral malnutrition, are well up to the high standards set under the editorship of Dr. Piersol.

MILTON PLOTZ

Textbook for Male Practical Nurses. By Gayle Coltman, R.N. Duodecimo of 215 pages. New York, The Macmillan Company, 1941. Cloth, \$2.00.

This book is written primarily for male practical nurses, but the information it contains is useful to anyone who is entrusted with the care of a patient, whether in a hospital, sanitarium, or at home. The hospital and its component departments are described. The proper procedures to follow in the care of the patient from the time the patient enters the hospital to his discharge are carefully and accurately outlined.

Everything in the care of the sick to increase the patient's comfort and relieve his distress is described. This book contains the principles of good nursing for all of those who take up nursing for their life's work.

PHILIP GOLDFADER

NEW YORK STATE JOURNAL OF MEDICINE

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Editorial

Sauce for the Goose

The time is now at hand which will provide a real test of the temper of the American people, and perhaps also of the soundness of our more recently acquired institutions and customs. The only real sacrifices to date under the defense program have been made by the young men called into selective service, young physicians included.

There will be need from now on for willing sacrifice and self-restraint by everyone. Restrictions on the use of silk and gasoline are already in force besides many other priorities in raw materials, the effect of which is not so immediately felt by the public. But they will be felt, we have been exceedingly wasteful of the gifts of freedom by and large.

Now, by government regulation and for the common safety, we will have to do without—to economize in many ways to meet the threat of "absolutism tempered by assassination." That means increasing self-restraint on the part of everyone. But since the power to restrain is being increasingly granted to the government, it becomes more than ever an obligation of those entrusted with the far-reaching powers of regulation to use them wisely.

These increased powers are being accorded by the people to government for the sole purpose of *preserving our democratic system* and not at all with the intention that there shall be created thereunder a managed economy. For the duration of

any *real* emergency, during which all necessities must be subordinate to the defense effort, such grants of power are the indispensable tools of accomplishment and will be so considered by those who must bear cheerfully and willingly the brunt of the sacrifices in money and comfort necessarily entailed, as well as in a different way of life. But let the fact be clearly understood that these grants of power are mere proofs of the flexibility of the democratic way of life and in no way constitute a mandate to change the form or philosophy of our constitutional government.

Those physicians who, for the emergency, are willing to throw their all into the pot, abandon private for public medicine, and their associates who are cheerfully aiding without recompense the selective service, the civilian defense preparations, and all the other burdens of the emergency are doing so in the expectation that their representatives in Congress and those who administer the necessary regulations will subject themselves to the restraints they propose to require of others.

There is still an American ethos, a characteristic spirit of the Nation, it was born here, on the soil which we prepare to defend and for which any sacrifice will cheerfully be made. It must not be permitted to die by confusion of purpose, by the permanent abandonment of a philosophy of government which has

nurtured it About that let there be no misunderstanding "You have," said

Benjamin Franklin, "a Republic, if you can keep it"

What Price Human Life?

With nearly the entire world engaged in an orgy of unprecedented human slaughter on land, sea, and in the air and with this Nation busily engaged in the manufacture of the means to this end, mention of our domestic mortality rates may seem somewhat smug Nevertheless, in spite of an increase of about 17 per cent in automobile accidents, the mortality of the American people seems to remain at a favorably low level According to the *Statistical Bulletin* of the Metropolitan Life Insurance Company, for July, 1941, "the current year may fully be expected to rank among the years of minimum mortality" From the record of the first six months of the year of 1941, it "appears that there will be no less than seven in the list of selected causes of death that will establish new minimum rates scarlet fever, diphtheria, pneumonia, tuberculosis, diarrhea and enteritis, appendicitis, and puerperal diseases Also, diabetes, cerebral hemorrhage, and chronic heart diseases"

Dislocations of the population due to worker migrations associated with the defense effort, housing shortages, and sanitary insufficiency in many areas might have been expected to react unfavorably upon the record, especially for the respiratory diseases, but tuberculosis and pneumonia continue to present minimum rates The favorable record for pneumonia appears to be the result of

improved modern methods of treatment of this disease

The death rate for motor vehicle accidents, according to the *Bulletin*, has risen 26 1 per cent It has been higher each month this year than in the corresponding month of 1940 Canada has shown the same percentage increase, approximately, but with a lesser total Looking forward to the near future when the output of new passenger cars will be sharply curtailed, the prospect is anything but bright for an effective reduction of accidents and fatalities For this will necessarily mean the prolonged use of old vehicles with their worn brakes and mechanisms Even the prospect of gasoline rationing will not necessarily affect the future totals, except possibly temporarily

It is discouraging to contrast the meager salvage of human life by improved methods of treatment of disease by the slow and orderly progress of study and research with the criminally carefree and brutal destruction of well people by machinery Is it not a little ridiculous for supposedly intelligent human beings to point to a low mortality rate with pride and to labor ceaselessly to create machinery with which to kill off or maim those who are spared extinction from disease? To us it does not make sense even in a cockeyed world, much less in a sane one, or does it?

Eighteen Thousand Suicides

Suicide is one of the few crimes, of which we are aware, for which the law punishes failure to commit it successfully It is a major social and medical problem in the United States, according to the Metropolitan Life Insurance Company¹

"More than 18,000 people a year in this country put an end to their own lives, and probably an additional 100,000 make unsuccessful attempts to kill themselves

"It is a melancholy thought," says the *Statistical Bulletin*, "that considerably more than 100,000 people in this country

¹ Statistical Bull. Metropolitan Life Ins. Co 22
-- 5 0 (Nov) 1941

each year find life so hopeless and cheerless that death seems preferable" Under 25 years of age, 1 out of every 6 men, it appears, who attempt to destroy themselves are successful, while at ages 50 and over, the ratio is 2 out of 3. The ratios are different among women. Under 25, only 1 woman succeeds to 18 who fail, but at the age of 50 and over, 1 succeeds to 2 who fail.

The *Bulletin* comments further that the "effort to prevent suicide has hardly been commensurate with the magnitude of the problem." The same *Bulletin*² forecasts for 1941 the prospect of a new health record and a further probable decline in mortality from disease, but "a disturbing increase in motor vehicle fatalities." These, we are informed from

other sources, are said to be, so far, about 12 per cent above those for 1940.

Suicides and motor vehicle fatalities seem to us to be a wastage of life which should not be tolerated with the complacency we seem to exhibit. On the other hand, it seems curiously paradoxical—or something—to attempt to save people from death from these causes only to have them and many others dismembered by bombs, drowned by sinking ships with torpedoes, burned to death by flame throwers, choked by poison gas, shot to death by gunfire, or rolled flat by tanks. There appears to be something a little wrong about our theory and practices somewhere. If we could straighten this out somehow, it might be possible to start a really effective campaign to reduce wastage of life.

² *Ibid* page 10

A New Test for Pregnancy

Since the introduction of the Aschheim-Zondek test for pregnancy, subsequent work along this line has led to modifications or simplifications of this basic procedure. All of them depend upon the estrogenic substance present during gestation.

Falls, Freda, and Cohen¹ now describe a test which has as its basis the immune and biologic mechanisms responsible for allergic reaction. The material used is colostrum obtained from primipara during the twenty-eighth week of pregnancy. This is diluted with an equal quantity of physiologic saline solution. To 100 cc of this mixture, 0.1 cc of a 1 to 100 dilution merthiolate is added.

This test is performed like all other allergic tests. Using a tuberculin syringe, $1/50$ cc of the above described solution is injected intradermally.

When the patient is pregnant, the resulting wheal will disappear within one hour and the skin surrounding the site of injection will remain unchanged in appearance. In other words, no reaction to the colostrum occurs. In the absence of pregnancy, the wheal increases in size and a pink to red areola accompanies the swelling for a distance of 1 to 2

inches. This flaring is irregular in contour and shows projecting striae. The reaction increases in intensity within an hour of injection and may last for five hours.

Falls and his co-workers performed this test upon 265 cases of definite pregnancy, there were only five false positive reactions in this group. In 113 nonpregnant women wherein this test was employed, four reactions positive for pregnancy appeared. The active protein responsible for this reaction has as yet not been determined.

It seems that the small amount of colostrum appearing after puberty in all nonpregnant women sensitizes the adult body to this protein. The writers feel that a temporary immunity against it is established during pregnancy. The practical application of this test has shown that women on their last day of menstruation will almost always show a positive test. Further experiences will unquestionably produce additional informative observations. Should this test compare favorably in accuracy with those now in general use, it will mean a saving of time and expense. Undoubtedly, the simplicity of this pregnancy test and its ready applicability as an office procedure will bring forth speedy reports of further research.

¹ Falls, F. H., Freda, V. C. and Cohen, H. H. *Am. J. Obst. & Gynec.* 41: 431 (March) 1941.

Cardiac Trauma

One rarely thinks of trauma to the heart without picturing a penetrating wound through its musculature. The spectacular success in the management of cardiac wounds which has been achieved by thoracic surgeons has overshadowed the seriousness of what Beck¹ calls contusion of the heart. These cases most frequently follow automobile accidents wherein the steering wheel suddenly strikes the thorax.

The osseous framework of the thoracic cage possesses a high degree of elasticity. Even when a violent blow has been struck, it may spring back to shape and give no external evidence of injury to the heart. The injured person, after a short period of rest, can usually continue on his way, only to experience later the symptoms of cardiac contusion.

The predominant symptom is a feeling of general weakness, associated with a transient drop in the arterial pressure. Extreme shock, wherein unconsciousness, air hunger, a clammy skin, and an extremely low blood pressure are

evident, speak for severe contusion. Aunclular fibrillation may occur and heart block may result from hemorrhage into the bundle of His. Cardiac contusion should always be suspected when anginal-like pain or epigastric distress and vomiting follow trauma to the thorax. High venous pressure, a low arterial pressure, in the presence of a quiet heart are characteristic of acute cardiac compression. The appearance of deep Q waves, notching of the QRS complex, or inverted T waves in the electrocardiogram will remain permanent findings only if the injury to the heart muscle has resulted in some complete destruction.

In our time, with trauma assuming a more important role in the causation of medical infirmity, the notations of Beck are of the utmost importance. His suggestions for therapy may not meet the exigencies of war, but his recommendations for the use of quinidine, sedatives, and oxygen, among other measures advocated, can be adapted to military use with slight modifications. Contusion of the heart, and its successful treatment, will emerge as another achievement of medicine.

¹ Beck C S. *Texas State J Med* 36 660 (Feb) 1941

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PETER IRVING, M D, *Secretary*

THE IMPORTANCE OF THE INVESTIGATION OF PERSONALITY FACTORS IN PSYCHOSOMATIC PROBLEMS IN MEDICINE

EDWIN J. DORY, M D , New York City

PSYCHOSOMATIC problems in medicine may be divided into three general groups. The first includes those patients in whom a personality disorder resembles, in its symptomatology, a somatic illness. After careful physical studies have excluded organic conditions, the tendency may then be to assume that the patient has a personality disorder. However, the diagnosis of a neurosis or other type of personality disorder is not justifiable on such a by-exclusion basis. Such a diagnosis should depend on the demonstration of definite disturbance in personality functioning.

A second group comprises those patients in whom somatic disease is present but is overlooked because a co-existing personality disorder is more prominent. In these instances thorough somatic studies will reveal these less apparent physical disturbances.

The third group is made up of those patients who show prominent manifestations of somatic illness. These are so apparent that they tend to conceal personality factors that are also contributing to the patients' difficulties. In these cases if the physician is inclined to explain the patients' symptoms as due entirely to the positive physical findings, he will neglect associated important disturbances in personality functioning. To guard against overlooking important personality factors, one should evaluate these factors in all patients having physical illnesses.

Two examples of psychosomatic medical problems will be considered which illustrate the value of an integrated study of physical and personality factors. In the first of these patients the somatic factors might be regarded as predominating over the personality factors, while in the second patient disturbed personality functioning was prominent.

Case Report

The first patient, a 33-year-old, unmarried saleslady, was admitted to a medical service complaining of headaches that had occurred since the age of 7. Until the menarche at 12,

the pain had been mild but, since then, had been frequently severe enough to incapacitate her. At times, almost continuous, moderately intense headaches persisted for several days. The pain of a severe throbbing character usually started in the bridge of the nose then spread to the right cheek, orbital region, right side of the neck, and shoulder. These headaches were accompanied occasionally by photophobia, "puffiness" of the eyelids and right side of face, as well as by nausea and vomiting. Mild analgesic or sedative medication afforded only partial relief. A year before admission she was told that her blood pressure was elevated. Shortly thereafter the headaches increased in severity. She also began to have epigastric pain that occurred two or three hours after eating and was relieved by taking milk or sodium bicarbonate.

During childhood her health had been good, and she had adjusted well in her family group and in school. Because of family financial difficulties when she was 14, she had to give up her ambition to become a teacher, leave school, and go to work. For several years she has been a competent saleslady in a large department store. It has been necessary for her to contribute to her parents' support, and she has continued to live in their home.

Because of the nature of her complaints the medical intern, in taking the initial history, investigated her personality organization. It was brought out that she was shy, self-conscious, easily offended, perfectionistic, and serious-minded. She stated that she enjoyed her work and obtained additional satisfaction from attending the theater and concerts, as well as the social gatherings of friends. Seven years earlier, she had contemplated marriage. However, after deciding that the man did not satisfy her criteria of a suitable husband, she decided to remain single. She believed that her subsequent resignation of spinsterhood had been influenced by her knowledge of unhappy marriages in her family.

Among her progenitors, the paternal grandmother and a paternal aunt had suffered from severe headaches. Her father at 61 was high-strung and, because of hypertension, has been unable to work for the past ten years.

Along with this history of the patient's background, the somatic studies revealed generalized excessive perspiration, slightly edematous eyelids, and a blood pressure of 170/100. Urinalysis, kidney function tests, and electrocardiogram were normal. Gastrointestinal x-ray studies showed evidence of duodenal ulcer.

The physician in charge of the patient made the diagnoses of migraine, essential hypertension,

Read at the Annual Meeting of the Medical Society of the State of New York Buffalo, April 29 1941

Assistant Attending Psychiatrist Payne Whitney Psychiatric Clinic New York Hospital

From the New York Hospital and the Departments of Medicine and Psychiatry Cornell University Medical College

and duodenal ulcer. A soft gastric diet, with medication to reduce gastric acidity, relieved her abdominal distress. The importance of the personality factors, already described in the intern's history, was recognized in formulating the general plan of treatment. Accordingly, psychiatric consultation was requested.

During the psychiatrist's first interview with the patient on the medical ward, she was friendly and pleasant but tense. There was marked flushing of the skin over her neck. She told of becoming "tense, discouraged, nervous, and irritable" when she had a headache and added that the pain was apt to be more severe if she became emotionally upset or fatigued. On being encouraged to discuss her relationships with others she became tearful and evasive. She emphasized her conscientiousness in her work, illustrating this by telling of never going to the employees' rest room to relax. This conduct she contrasted to that of other employees whom she characterized as lazy.

She remained in the hospital for three weeks, and during that time her tenseness gradually decreased. Her pulse rate slowed and was less variable. Her blood pressure varied, the highest reading being 180/120. At the time of discharge it was 150/104. In discussions with the psychiatrist she was encouraged to unburden herself. She was reassured that she could be helped. Particular attention was given to her fear that her headaches were due to a brain tumor. She was given practical advice as to the modification of some of her personality features, especially along the line of securing more relaxation and being less perfectionistic in her attitude toward her work. Various aspects of her family and home situation were considered. The fact that she had been required to subordinate some of her desires to the necessity of contributing to her parents' support was discussed from the standpoint of the significance of frustration and resentment.

Since her return to work it has been apparent that she has gained insight as to the importance of personality factors in relation to her symptoms. Although her headaches have recurred, they have been less frequent and severe. Other than for an occasional dose of mild sedative medication, she has not required somatic treatment. She has been free from abdominal discomfort and quite consistently cheerful. In her work she has been able "to take things more lightly and relax more easily." She has been pleased that this changed attitude has not produced any decrease in her efficiency as measured by the amount of merchandise she has sold. Six weeks after leaving the hospital her blood pressure was 190/95. It has since continued to show a comparable degree of elevation.

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ology and clinical course of essential hypertension¹ and peptic ulcer.² Wolff,³ in study of the personality functions of patients suffering from migraine, has demonstrated the importance and therapeutic significance of such features as the perfectionism and emphasis on efficiency which this particular patient showed. In this instance, an awareness of the importance of such factors on the part of the internists studying the patient influenced them to enlist the aid of the psychiatrist in their program of investigation and treatment. The collaboration of the internists and the psychiatrist, although not rendering the patient symptom-free, has succeeded in favorably modifying her complaints. Such treatment has enabled the patient to acquire a helpful understanding of the interplay of various factors that are of importance in the production and accentuation of her symptoms. This understanding has aided her in the working out of modifications of her personality reactions which should benefit her not only in the way of diminishing her complaints but in achieving a more satisfactory life adjustment.

The second case to be considered presents a different type of psychosomatic problem. Here, the manifestations of disturbed personality functioning were outstanding and brought about the patient's admission to a psychiatric hospital. Evidence of hyperthyroidism was also recognized. This constituted an important somatic factor that could not be neglected in any broadly inclusive and well-integrated formulation of study and treatment.

Case Report

An 18-year-old, unmarried youth was admitted to a psychiatric inpatient service because he had displayed emotional instability and poor judgment. A short time before, he had done so poorly in the final examinations of the first semester of his freshman year that he had been asked to leave college. During the preceding three months he had been restless and tense and had shown a marked tremor of his hands. He had lost 21 pounds in weight and smoked excessively. Although previously temperate, during this period he had used alcoholic beverages almost daily and occasionally in excessive amounts. While taking his final examinations, he was troubled by the local discomfort caused by pediculosis pubis. Although he had not had sexual contact, he was concerned greatly as to the significance of this condition. This reaction seemed to be related to the fact that in a recent hygiene course he had been much impressed by pictures that depicted the effects of syphilis. Shortly after leaving college, he wrote several

checks that represented a sum of money considerably greater than the amount he had on deposit in the bank. He did this to make part payments for an automobile, two radios, and considerable clothing. His parents, having been informed of his behavior, asked him to return home. He complied willingly but refused to discuss his injudicious purchases, attempted to buy another automobile, and continued to display restlessness and tremulousness. The private physician's clinical studies revealed excessive perspiration, tachycardia, and a basal metabolic rate of +31 per cent. This physician, also being impressed by the patient's emotional instability, excessive use of alcohol, and poor judgment in the use of money as evidences of disturbed personality functioning, advised that he be admitted to a psychiatric hospital.

The patient was the only child of parents in modest circumstances. Other than for some occurrence of nail-biting in childhood, his developmental history revealed nothing unusual. His health had been good, and he had made a satisfactory scholastic record in grammar and high schools. The study of his personality represented him as an active, energetic, even-tempered, outgoing, sociable youth with a fairly wide range of interests. In his associations with those of his own and the opposite sex, he had appeared to adjust well. He was fond of his parents and demonstrative of affection. In his attitude toward himself he had displayed a desire to be neat and well dressed. He had shown a tendency to act impulsively on judgments. His parents thought that he had felt a lack of money while at college where, for the first time, he was associating with others of his age group who were members of wealthy families. He had never indulged in sexual intercourse, feeling that this was not desirable until after marriage. There was some evidence that the expression of a contrary code of sexual morality by some of his reputedly more sophisticated college associates had engendered in him some conflict and uncertainty. He denied experiencing any concern over his occasional practice of masturbation.

In his hereditary background, a paternal uncle was noted to be moody. Also a female paternal second cousin at the age of 38 had a depressive illness complicated by hyperthyroidism. She died of exhaustion and cardiac failure a few days after admission to a hospital for mental illness. Apparently the patient had not been upset by the psychopathologic disturbances displayed by these two relatives with whom he had come in contact only occasionally.

On admission, he was friendly but facetious, boastful, and self-satisfied. He minimized his recent difficulties and rationalized his unusual behavior. He made a fairly good adjustment to the hospital routine but desired participation in much more strenuous physical activity than he was allowed. Tests of orientation, memory, and the retention of immediate impressions were

well performed. A psychometric examination indicated that he was intellectually capable of doing college work.

He was well developed physically but appeared to be somewhat undernourished. The thyroid gland was moderately and diffusely enlarged. There was a coarse tremor of the extended hands and slight impairment of ocular convergence. Tendon reflexes were slightly hyperactive, and his hands and feet perspired excessively. The heart was not enlarged. His pulse rate varied between 86 and 108 per minute, his blood pressure was 140/55. The creatine tolerance test showed normal retention. Basal metabolic rate was +50 per cent.

The diagnostic opinion of the hospital staff was a mild hypomanic excitement with hyperthyroidism occurring in the setting of late adolescence.

During the first two weeks in the hospital he lost weight, although he ate well. Thereafter, he gained weight progressively. An internist saw him in consultation and confirmed the diagnosis of hyperthyroidism. On that physician's advice the patient received syrup of hydriodic acid 4 cc daily, luminal 0.030 Gm three times a day, calcium lactate 0.6 Gm three times a day, and a high-vitamin diet. In addition, his physical activity was limited, and he received a sedative bath of one hour's duration each afternoon. On this regimen his pulse rate slowed, the tremor of his hands decreased, and he slept well. Two weeks after admission his basal metabolic rate was +47 per cent. This then decreased progressively, and at the end of four weeks in the hospital it was +17 per cent. The luminal and the sedative baths were discontinued six weeks after admission, and he was permitted to increase his physical activity gradually. Occasional brief periods of mild depression and tearfulness occurred. The boisterousness and resentment of supervision diminished gradually and disappeared after about eight weeks of hospital residence. At that time he began to make visits accompanied by his parents.

During interviews with the psychiatrist, the patient discussed his behavior before admission and gained some insight as to the significance of his excessive use of alcohol and his poor judgment. Various aspects of his personality functioning were discussed with him, such as the conflicts arising from the interaction between his instinctual urges and the restraining influences of his ethical standards. Attention was also given to the difficulties he had experienced in his social and academic adjustment in college. There, the environmental demands were of a different type than those presented by his modest home circumstances and the less exacting educational requirements of a small high school. His tendency to resent supervision and to display boastfulness and irritability were analyzed with him in terms of the particular significance of the personality problems of adolescence.

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PRACTICAL ASPECTS OF PSYCHIATRIC MANAGEMENT IN PSYCHOSOMATIC PROBLEMS

GEORGE E. DANIELS, M.D., New York City

THE growing interest in psychosomatic problems raises the natural question in the minds of the general medical man "What should I do about it?" Overselling of the emotional factors in disease—even emphasis on them—without indicating at the same time the avenue of effective discharge, is poor mental hygiene and can only lead to a feeling of frustration and actual delay in progress in this field because of premature enthusiasm without opportunity for adequate action.

It is my intention in this communication to indicate a few of the practical aspects of the treatment of psychosomatic cases in terms that will be understandable and useful to the man in general medicine or in specialties other than psychiatry. I hope you will not be disappointed because the paper does not deal with indications and dosage of medication, supportive treatment in toxic cases, or criteria for hospitalization. These are intensely practical problems but have been dealt with elsewhere, whereas the equally important questions of judgment on how far to go in preliminary psychotherapy or in the management of the emotional problem have been inadequately discussed as far as the general practitioner is concerned.

"Should the general medical man do psychotherapy?" This question, often heard, is improperly phrased. The family doctor, in fact any doctor who cares for a patient over any period of time, cannot avoid exercising a psychotherapeutic influence, either positive or negative. The question is, rather "To what degree can the doctor make his general medical treatment more psychotherapeutically effective, and to what degree, if any, should he utilize psychiatric technique?"

One often hears it said that the theories and practices of the psychotherapist appear fantastic and that all that is necessary in handling personality problems is common sense. A good seasoning of common sense is valuable in any relationship, but it is an error to think that without knowledge of psychodynamics one is in a position to manage or

treat neuroses. The obvious surface phenomenon often belies the deeper trend and, unless one knows how to reduce both to a common denominator, pure application of common sense may produce far from the desired result.

The situation presented by the emotional complications of physical disease, be the symptoms predominantly physical or functional, calls for a mixture of boldness tempered by caution in the initial handling. Not to go far enough is to deprive the patient of the security of his illness without pointing the way out. To go too far, especially if this is done precipitately, may plunge the patient into a much more serious mental disorder or bring about a marked accentuation of the physical symptoms. As in any branch of medicine, the kind and degree of treatment depend on the selection of the case and the training and experience of the physician. I should like to use one of the most frequently encountered symptom complexes to illustrate approach and handling. The same general principles hold for psychosomatic symptoms encountered elsewhere in the body.

A patient comes to the hospital or office complaining of cardiac symptoms. These may be mild, in the form of occasional palpitation and precordial discomfort, may consist of tachycardia with some extra systoles, or may be in the nature of full-blown attacks, with palpitation, sweating, and a choking feeling with difficulty in breathing. Accompanying such attacks, which may last fifteen or twenty minutes, there may be great apprehension and fear of dying. The patient, whatever the degree of the symptoms, fears organic heart disease and either comes, or is brought, for examination.

The history and a careful physical examination reveal no evidence of serious physical disorder. We will assume that the physician knows his physical diagnosis and recognizes the condition as functional. He may go so far as to recognize it as the clinical picture of anxiety. What is his next move? There is no question that, in cases in which no structural disease is present, reassuring and convincing the patient that he does not have a serious or fatal malady is an obvious and necessary step in the therapeutic procedure. The time and way this is done, however, may

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As the evidences of hyperthyroidism persisted, the internist in subsequent consultations raised the question of the advisability of thyroidectomy. He did this because he thought the hyperthyroidism might have deleterious effects on the patient's cardiovascular system and that such changes might persist. However, electrocardiographic and x-ray studies of the heart during the tenth week of hospital residence showed no variation from normal. At that time the patient was becoming more stable emotionally and was making a good social adjustment. His pulse rate was becoming stabilized at a lower average level and his basal metabolic rate was +6 per cent. It appeared that, along with his improvement from the psychiatric standpoint, the hyperthyroidism was diminishing. Accordingly, it was decided that the continued medical treatment of the thyroid dysfunction was justifiable.

Fifteen and one-half weeks after admission the patient was discharged to return home. He had gained 14 pounds in weight during his hospital residence, and his basal metabolic rate was +3 per cent. Also, the thyroid gland had decreased in size. He was instructed as to a routine of gradually increased physical activity and was advised to continue taking a daily 4-cc dose of syrup of hydriodic acid. On the advice of his private physician it was later discontinued.

Sixteen weeks after leaving the hospital his basal metabolic rate was -1 per cent. After several months of business training, he secured employment in the accounting department of a large manufacturing corporation, where he is doing satisfactory work. He expresses himself as pleased with his situation. During his last visit home, three years after the onset of his illness, his parents noted no evidence of his former symptoms and regarded him as stable and well adjusted.

The relation of hyperthyroidism to personality disorder is a complicated one, both etiologically and symptomatically. The thyroid dysfunction, in some instances, appears to be the cause of the personality disorder. In other patients it seems to be rather an effect of the mental abnormality. In this case the history presents the manifestations of hyperthyroidism as appearing before the symptoms of the hypomanic reaction. This suggests that the personality disorder might have been secondary to the hyperthyroidism. Rather than enter into a discussion of such possible etiologic relationships, it is more pertinent to the purpose of this communication to emphasize another aspect of this clinical problem. That is, the importance of recognizing that in this case one was dealing with the interplay of two types of illnesses and should, therefore, try to avoid attributing all the symptoms to one or to the other of the two

Many discussions of psychosomatic medical problems place much emphasis on the physician's being aware of psychologic factors in his patients. The second case presented demonstrates another aspect of the study of psychosomatic problems which has not been stressed to so great an extent. The reference here is to the fact that it is essential for the psychiatrist to possess an adequate knowledge of the problems of physical illness. He will then be less likely to overlook somatic factors in his patients while he focuses attention on disturbances in their personality functioning. Also, in consultations with his medical and surgical colleagues, he will be able to make more helpful diagnostic and therapeutic contributions.

There is a general acceptance of the belief that personality factors are frequently of importance in various somatic illnesses. In closing, I should like to call attention to some studies that substantiate this concept. Dunbar⁴ and her associates, during a two-year period, studied all patients admitted to the Presbyterian Hospital in New York City for the treatment of cardiovascular disease, diabetes, or fractures. In 300 out of the total 605 patients studied, a detailed psychiatric investigation could be conducted. It was found that emotional factors played a role in more than three-quarters (78.67 per cent) of these 300 patients. Ripley,⁵ in a review of his work as the psychiatric consultant to the New York Hospital, reported on 218 patients whom he studied during one year. This group represented 15 per cent of the total number of patients admitted to the medical service during that period. In approximately one-third (32 per cent) of these cases, physical illness was complicated by psychoneurotic features. Only 4 per cent of the entire group showed no positive psychiatric findings contributing to the diagnostic formulation.

It is to be hoped that, with increasing familiarity with the importance of psychologic factors in the problems of illness, physicians will use the investigation of personality functions as an integral part of their studies of patients.

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her voice while telephoning home. No local pathology accounted for this. The suspicion that there was a large hysterical element, coupled with her failure to act favorably to reassurance that her heart was sound, led to psychiatric consultation and treatment.

A careful recheck of the circumstances surrounding the onset of symptoms revealed that her first attack of palpitation had occurred on the evening of the graduation from high school of a daughter who had recently become engaged and three days after the marriage of her only son, who was 21. This son's announcement that he was going to marry had been a great shock to her and, although his fiancée was perfectly acceptable, the patient opposed the marriage on the grounds of his age. She openly showed her resentment that anyone should replace her in his affections and claimed that she had not known they were keeping company, although the son had made no secret of it. In spite of her objections he had gone ahead and married. On top of the physiologic evidence that one chapter of her life was closed, the patient's children were leaving her, preferring others to her and flouting her authority. Under such circumstances there was a last desperate effort to hold attention and affection through illness, utilizing autonomic phenomena undoubtedly made available by the climacteric.

In this case, medical opinion had tended to reinforce into a conviction the patient's own fear that she had serious heart disease. The local physician who was called at her first attack of palpitation told her that she had heart trouble and prescribed digitalis. The shock of this information led to her fainting. She went to bed for a week and for the next three months suffered from attacks of dizziness and weakness. And then, when the son and his bride moved from the patient's home, her severe heart attacks began. During the next five years she saw many doctors who made diagnoses of heart trouble, menopause, and diabetes. One doctor said she would not live long, and after this information her attacks became more severe. The fact that the menopause and, later, the mild glycosuria gave some physical basis for her symptoms had blocked inquiry into the emotional factors.

The patient's aphonia had first appeared after her husband had given up sexual relations with her because of his fear that it would be injurious to her health. The couple had been given no advice on this, an improvement occurred later when relations were re-established.

We have no time to go into the question of the diabetes which, although in this case it is perhaps adequately explained by the menopause, often has important emotional components. Earlier attention to these emotional components might have postponed, if not prevented, the diabetes, although at the present state of our knowledge this is conjecture.¹

The emotional reasons for this patient's dis-

turbance were uncovered and dealt with by showing her that she was passing through what every woman must experience, and by showing her that neither this nor the fact that her children would inevitably grow up and marry if they were healthily independent was worth chronic invalidism and the eschewing of satisfactions still open to her. At the same time the house physician patiently repeated his examination of her heart from time to time in order to reassure her more forcibly, and the nurses who took special pains to increase the range of her activities were instructed to use reassurance generously. By dint of this combined therapeutic approach, the patient, who had been confined to her house for two years—most of which time was spent in bed fearing the worst—got about sufficiently to be discharged after a month, and she returned regularly for outpatient medical and psychiatric treatment. Although she continued to have some attacks, they did not materially limit her activities. She resumed visiting her friends, going to the theater, and doing light housekeeping during the next few years, with occasional visits to the psychiatric clinic for relatively superficial psychotherapy.

The taking of additional history that contains the elements of the emotional conflict, as in the foregoing case, may represent a psychotherapeutic act in itself. When this is directed to bringing about emotional discharge of affect, it is called mental catharsis. This is simply a more technical term for getting the patient to unburden to the physician—a therapeutic maneuver that the priest and wise physician have been aware of from time immemorial.

Every intuitive person knows how much relief a good cry may give in a situation of grief or how expressing one's anger to a second person will bring it into control or leave one better poised to do battle. These truths, however, are often lost sight of in the pressure of medical practice and on a busy hospital ward. They are often considered detrimental if the patient has some incapacitating physical disease. "Don't cry, it simply upsets you," is a frequent admonition. In the general hospital it is commonplace for the ward personnel and patients to become adjusted to a patient's cries or moans as an expression of physical pain, but, if the pain is mental, there may be little patience or understanding. Naturally, one cannot allow a general medical or surgical ward to become a psychopathic one, but the suppression of quiet crying often defeats its end and, if psychotherapy of any depth is to go on, one would expect some emotional cathartic relief to occur. This is especially so when it is working

be signal in the entire management of the case

In milder cases the reassurance that there is no serious physical disease may lead to prompt relief, and in the mildest cases, particularly in adolescence, such reassurance may be sufficient to tide over the situation, and it may be unnecessary to go further into the matter. However, if the underlying conflict is severe, the effect of reassurance cannot be more than transient, and perhaps it should be temporarily withheld until one has had an opportunity to take further bearings on the case.

The circumstances under which information—even obvious information—is conveyed to the patient must take into account the seriousness of the neurosis and the extent to which seemingly unsolvable environmental factors lie behind the symptoms. To tell a patient who has been suffering from severe functional cardiac symptoms for several years that there is no trouble with his heart, without further preparation, may be fraught with serious consequences—sometimes even with the precipitation of a psychosis. A patient whose serious maladjustment has been screened behind physical symptoms cannot tolerate a too rapid tearing away of the mask that has been afforded to his most intimate struggles—a mask also acting as a screen even to his own conscious appreciation. The result may be no change at the time, the symptom may disappear to reappear shortly in some other organ or the patient may seek refuge in a psychosis. I recall one such patient who had been sitting on a volcanic marital situation for ten years. Her main safety valve had been attacks of palpitation. These erupted into a hysterical stupor and approached a catatonic episode when it was explained to her that she did not have heart trouble. Her main problem was too abruptly approached. In psychosomatic medicine, as in surgery, there are certain walled-off diseases that should be opened up only, if at all, under the most scrupulous application of technique.

If the manifestations are not sufficiently mild to justify the physician's strongly reassuring the patient with the prospect that this alone will be sufficient, what is the next step in procedure? This must be in the form of a cautious investigation into the sources of conflict, so that the patient's attention may gradually be directed toward the seat of the difficulty. Whether the general medical man or other specialist is able to deal with the problem, or whether it needs to be handled by a

psychiatrist, depends upon the depth and seriousness of the difficulty and upon the physician's understanding of mental phenomena. Simply to reiterate to the patient that there is nothing the matter with his heart, or to go even further and insist that the difficulty is simply imaginary, is likely to lead to confusion or vehement disbelief or anger, if not to the other contingencies mentioned. The patient knows that he has the symptoms, and as the symptom is based on disordered function—though from a different source than that of organic heart disease—it cannot be relieved until one deals with the more fundamental situation.

In attacks of neurotic anxiety expressing themselves through heart symptoms, it is important for the practitioner to bear in mind that these symptoms may arise in one of a couple who are using biologically unhygienic methods of contraception or who are ignorant about the mechanics of intercourse. In a few instances, proper contraceptive advice or simple sexual instruction may bring brilliant results. Such uncomplicated cases are not common and, if the symptoms are severe, usually a more deeply seated neurosis is present.

The following case represents an example of a patient who had become a chronic invalid through mismanagement but who was considerably helped by the utilization of a pertinent psychiatric history in conjunction with repeated reassurance and medical re-education.

Case Report

B R, a Jewish housewife aged 53, was admitted to the Presbyterian Hospital for heart trouble of five years' duration, mild diabetes for three years, and attacks of hoarseness for two years. The onset of her illness occurred a few months after the first signs of the menopause. Her attacks consisted of precordial pain, palpitation, and irregular breathing with extra systoles and prolonged compensatory pauses. The patient was convinced that she might die during an attack. The attacks were precipitated in the hospital whenever she attempted to exert herself and often were accompanied by hoarseness, although this symptom also occurred independently.

Careful physical examination revealed no organic cardiovascular disease. Her periods still occurred irregularly. She had a mildly elevated blood sugar level, which was controlled by diet. It was noted that she was apt to have her most severe attacks during visits of the family when she would often lose her voice completely in their presence but recover it rather promptly after their departure. On one occasion she suddenly lost

also mentioned that since her outburst toward her mother-in-law she had "put the whole thing out of her mind." The probable relationship between the two phenomena, accentuated pain and successful forgetting, was pointed out to her. She reported during the following interview that the pain in the breast had subsided the day of the last visit, that she had begun to sleep regularly, and that she felt better than she had for a long time. The conflict over the mother-in-law had been brought to the surface to be discharged through normal channels and was in the process of being successfully worked through.

The preceding example illustrates the fact that the material that may come out during mental catharsis may have a considerable weight of hostility behind it. In this instance, its very emergence in the medical situation made it possible for the patient to clear the atmosphere in the environmental situation. It is also important to bear in mind that, in the process of releasing underlying hostility, this may turn temporarily onto the physician in the course of the therapeutic situation. If the physician does not recognize this, he may mistake it for a sign of uncooperativeness and refuse to have further to do with the case, instead of dealing with it as a step in the therapeutic procedure.

The problem of when to give advice in cases with psychosomatic complications is important. In general, one seeks—as in the last case—to let the patient work out his own problems with the sympathetic and understanding attitude of the physician being maintained without injecting himself too much into the picture. It is bad psychotherapy, for example, to recommend that a middle-aged spinster get married when there is little opportunity of fulfilling this, that a neurotic woman have a child when there are strong resistances against it, or that a couple get divorced—even though the physician has recognized that the symptoms show conflict regarding these problems. If the obstacles, either neurotic or actual, are removed, the patient will proceed to the healthy solution of his problems. But if the obstacles have not been removed, advice—especially if accompanied by pressure—will only increase the complications.

The following case illustrates the situation in which the patient's own insight was reinforced by recommendation and encouragement from the physician. In order to become effective, however, this had to be distributed over a period of years, during which care had to be exercised that the patient was not pushed beyond her capacity to respond.

Case Report

M B., a single mulatto aged 29, was followed for eight years. During this time she had five attacks of severe ulcerative colitis, several of which necessitated months in the hospital. At the time of her first hospitalization during her third attack, she reported that she had been attempting for several years to leave her sister and sister's child who made undue financial and other demands upon her. She was on the point of transferring to a branch of her firm in Hollywood when the attack occurred. She remarked "I guess the excitement was too much." When she recovered from this attack she was given encouragement to make another attempt, but each time she made a move in this direction she would have a recurrence, or near recurrence. One such attack, for example, occurred when she had gone so far as to pick out another apartment away from her sister but in the same city. Finally, she did make this change. Then an open break with her sister followed, during which the patient was able to express openly her resentment. After a few months she made her long-delayed move to California. From there she reported that she was happy and contented and free from physical symptoms. In this case the total amount of time spent in psychotherapy was not great, not more than a man in general practice could have given. The indicated recommendation was clear, but judgment was necessary in the pressure with which this recommendation was followed up.

It is not the intention to imply that serious cases of ulcerative colitis can be cured by such a procedure alone. This patient had careful medical care during attacks. The condition is known to show remissions, and there is a question whether patients who have had severe attacks of ulcerative colitis ever entirely recover because of irreversible changes in the colon.

This problem is too complicated to discuss in detail at this time, but it is worth emphasizing that many cases of ulcerative colitis show clear-cut relationships to emotional difficulties, and, in many instances, improvement of the condition goes hand in hand with the resolution of the conflict. At the Presbyterian Hospital we have been particularly interested in following such cases. Dr. Langford, at the Babies Hospital, reports that cases in which the psychiatric aspects have been followed do consistently better than those in which this has been neglected.² Sullivan³ reported favorable results from an experiment in psychotherapy on the wards of the New Haven Hospital. The more detailed treatment of one of our own series has been recently reported.⁴

its way out gradually and with no special effort to evoke it

To tell a patient that he cannot do anything about his troubles and, therefore, to forget them can have unexpected reverberations. One such case was that of a 17-year-old girl with rheumatic heart disease who was given such advice on the ward when she showed grief in a perfectly normal way after a close friend, another patient on the ward, had died. The admonition to forget it was only too successful. The succeeding days she became calm and placid, but the following night she began a series of sleepwalking episodes which were ever so much greater strain on her heart than her quiet crying would have been. Of course, this is not a usual case, and a somnambulistic background made it possible to show such far-reaching effects, but it illustrates the danger of too vigorous repression of affect.

In extremely neurotic individuals, however, such unburdening cannot be encouraged with impunity. Under certain circumstances it even should be discouraged unless one has the time and necessary skill to go into a prolonged and carefully controlled analysis. The physician may unwittingly, because of a desire to be sympathetic, have the whole neurosis plopped into his lap without knowing what to do with it. The result may be a hopeless emotional tangle, and the last state of the patient may be worse than the first. One does not cure cancer by sticking a knife into the center of the diseased process. I believe that one of the reasons some physicians seem lacking in understanding when dealing with neurosis is an intuitive protection against such a situation arising. The danger would not be any greater, however, and the patient in the end might be the gainer, if such intuition were replaced by conscious awareness.

I have emphasized the importance of letting natural feelings express themselves, and I have stressed the danger of opening up the more serious emotional problems without time and professional training to deal with them. What should the physician's criterion be for encouraging the patient to unburden? It should be the same as that used in determining whether to give the patient insight into the emotional sources of his illness, which has been outlined above, i.e., the extent of the neurotic process and the severity of the environmental threat. If either or both of these show malignant ramifications, it should not be attempted by any but an expert. However, when the disturbing situation expressing

itself in a symptom is rather discreet and the rest of the environment will not tumble about the patient's head if he reacts appropriately, it is important for the practitioner to lend his aid as a sympathetic listener, perhaps confessor.

I should like to cite an example of a case that was treated by a third-year medical student, under supervision, in the psychiatric clinic to illustrate the successful operation of an emotional cathartic process.

Case Report

O C, a married woman aged 30, was referred from the Surgical Clinic where she had been under treatment for a month for chronic mastitis. Three weeks before coming to the clinic she had developed a lump in one breast, which she attributed to a blow, but she had been having some discharge from both breasts since weaning her 2-year-old child at eleven weeks. She was referred to psychiatry for insomnia, which first appeared after the birth of the child. It was noted that the affect connected with her complaint of pain in the abscessed breast was more than was to be expected and seemed to be psychoneurotically overdetermined.

After being followed for three weeks she came in one day, told the medical student that there was something that she had not spoken of because it was so personal, and launched into a tirade against her mother-in-law. This woman, she stated, had tried to interfere with the marriage to her son, was strenuously opposed to their having a child, and suggested when the patient was several months' pregnant that she have an abortion. When the child was born, however, the mother-in-law attempted to take over the whole management of its care and went to the patient's house several times a week to supervise her activities and to criticize. Though the patient's husband sympathized with his wife and though she was "burning up inside," her normal reticence had prevented her from defending herself. She stated that she had come to the conclusion shortly after starting the psychiatric interviews that this situation was the cause of the insomnia as well as of some of her other troubles. She had decided to break off gradually with her in-laws, and she had been sleeping and feeling better since she made this decision. In giving the account, her eyes flashed and she showed a tremendous accumulation of feeling and resentment.

The patient left the clinic, and shortly after arriving home her mother-in-law called her on the telephone to nag her about giving the baby bacon to eat. The patient promptly unloaded on her tormentor all the accumulated venom of the preceding four years. This was her first attempt to strike back. During the succeeding three weeks the pain in the breast was much accentuated. When reporting this in clinic she

THE TREATMENT OF FAVUS OF THE SCALP

GEORGE M. MACKEE, M D , GEORGE M. LEWIS, M D , and MARY E. HOPPER, M S ,
New York City

THE symptoms of favus are frequently slight and progression of the disease is often slow. Most of the cases we observe give a duration for the disease of several years. There is considerable variability in the degree of severity of sequelae. The disease may be present for many years and yet, when it is treated and the infection eradicated, little permanent alopecia will be noted. In other cases permanent alopecia may occur even after a few months. If treatment is adequate and carried out with thought to the findings of the individual patient, the ultimate result is usually satisfactory provided atrophy has not previously supervened. Favus is usually contracted in childhood and most of our adult patients acquired the disease before puberty. Women are more often infected than men. Due to the length of their hair it is easier for women to hide the disease.

Patients are usually advised by their physicians that the disease is difficult to eradicate and that x-ray epilation (which may be difficult to obtain) is essential to effect a cure. Most patients with favus are not well educated and usually have the impression that they are harboring a shameful disease. These factors tend to bring about an unfortunate attitude of defeatism and, together with the insidious nature of the disease, contribute to neglect in instituting treatment.

Our experience would indicate that favus of the scalp is not more difficult to cure than many other forms of *tinea capitis*. The slow progression of the disease and the fact that the infected hairs are usually less weakened by the invasion of *Achorion schoenleinii* than with many other fungi make favus of the scalp frequently more tractable than infections such as those due to *Microsporon audouinii* or to *Trichophyton violaceum*.

The management of the patient with favus appears to be imperfectly understood. In most texts on dermatology the fundamental procedures are given but the details essential to cure are not completely outlined. It is important to study each patient as an individual problem. During the preliminary period of examination the patient should be examined

for other foci on the skin or in the nails. Once the disease is recognized, the further management of the patient may be considered under the headings of "Case-Finding" and "Eradication of the Disease."

Case-Finding

An effort should be made to trace the source of the infection and to examine the contacts of the patient, particularly children in the immediate family. The following case illustrates the value of careful study of both the patient for concomitant lesions and of the family for other infections.

Case Reports

Case 1—F B, a housewife aged 27, was born in the United States of Italian parents. She first developed a crusted condition of the scalp twenty years before. This had gradually spread over the scalp to include all areas except over the occiput. She had not previously sought advice from a physician. Examination disclosed a widespread crusting of the scalp, forming an almost solid lamellated matt (Fig 1A). There was an offensive, pungent, musty odor, which soon fouled the air in all parts of the examining room. Many apparently normal hairs were present on the infected parts of the scalp, piercing the crusts and obscuring the extent of the disease. When some of the crusts were lifted off a livid red bleeding surface was exposed. Under the filtered ultraviolet rays, fluorescent hairs were seen to be distributed throughout the involved areas. The direct examination of a potassium hydroxide preparation revealed an endothrix infection with irregular filaments and spores and air bubbles typical of *A. schoenleinii*. The cultural growth later confirmed the diagnosis of favus. There were also crusted lesions with involvement of hairs on both legs, discovered after a careful inspection of the skin and nails.

Investigation of the relatives revealed the following:

(1) The husband of F B showed no evidence of the disease. They had been married for ten years. Of their 4 children, 3 showed clinical evidence of favus of the scalp, later confirmed by culture. The children who showed the infection were a girl aged 8, a boy aged 5, and a girl aged 14 months. A girl aged 3 showed no infection. In all cases the scalp alone was affected.

(2) M M, a married sister aged 23, had a diseased scalp for about the same period of time (twenty years). Examination disclosed an in-

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Summary

I have attempted in this paper to outline a few of the practical problems of management in general medical situations in which psychiatric insight is essential. These consisted in the use made of a negative physical examination for reassurance of the patient, the necessity of evaluating the point at which insight should be given into the emotional component of a psychosomatic disorder, the exercise of judgment in encouraging the patient to unburden and its relation to the use of mental catharsis, and, last of all, the question of giving advice

to patients with personality disabilities. The field of psychotherapy in psychosomatic disorders is not only vast but in large areas is uncharted. I have tried to pick out a few principles that are well established by experience, and I hope those chosen will prove of help in routine management of such cases.

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THE PSYCHOLOGY OF QUILSLINGISM

Most of us have been surprised by the influence that Hitler has exerted not only over his own people but over individuals in countries not his own—those who have been willing to collaborate with the Nazis even at the expense of their compatriots. The outstanding, and to ordinary eyes despicable, Quisling phenomenon is open to a variety of explanations—"Every man has his price," and "Nothing succeeds like success." There is, too, the stuff of which revolutionaries are sometimes made, such as spite, injured pride, bitter feelings of inferiority, and sensations of frustration and impotence in the face of the prevailing order. No doubt many of Hitler's converts are psychopaths like Hitler himself, but without the energy which makes him look like a genius. They are, in fact, in Henderson's terminology, "aggressive" but not "creative" psychopaths. Although these explanations are satisfactory up to a point, the suspicion that they do not explain everything is shown in the frequent references to the so-called hypnotic powers of Hitler, not only over his own people but over his political visitors. It is recorded of Napoleon that he had a similar effect in engendering fanatical and childlike self-abnegation in some people. Tolstoy, with the intuitive veracity of the first-class novelist, records in *War and Peace*, how an elderly warrior, his face flushed and his eyes gleaming, led his troop through a river, drowning forty of them in the process, for no better reason than that Napoleon was looking on. "Quos Deus vult perdere, prius dementat." There is no sense in such a performance, it is rather a kind of masochism. Those who to this day collect relics of Napoleon, and in a sense worship his memory, are examples in vitro of the same

kind of abasement. Devotion of such sort deserves examination for its unconscious roots. Dr. Ernest Jones, in a recent analysis of the psychology of Quislingism, has described the various attitudes of those who approved of Nazism—the passive acceptance of the slumdweller, who thought it a matter of indifference who governed, the denial of Hitler's aggressiveness by the escapist, who asserted there would be no war, the partial admission of Hitler's aggressiveness by the appeaser, who thought it could be bought off, and the man who thought the aggressiveness quite justifiable and even advisable. Jones ascribes all these attitudes in their various degrees up to the fully developed acquiescence and cooperation of the Quisling to the unconscious attitude toward the father. There is fear of him, and of one's own dangerous impulses toward him. The Quisling way is to identify might with right, and to say that because these dangerous impulses are strong they must also be good. At the same time they are denied within the subject himself and projected on to the father, who thereby becomes good as well as powerful and with whom the potential Quisling identifies himself. The attitude is psychologically homosexual. However hypothetical these speculations may be, they emphasize what is clearly important—namely, the part played by guilty feelings in inhibiting resistance to Hitler. German propaganda has in this respect taken a leaf out of the book of some religions. It has known too well how to play on the existence of a sense of sin in the people of the Western civilization—a sense which Freudians believe to be based on the forgotten unconscious conflicts of infancy and childhood.

—*Brit Med J*, May 31

OPHTHALMOLOGY—OTOLARYNGOLOGY

The program for the 1942 Meeting of the Section of Ophthalmology of the State Society is being prepared. Members who care to contribute to the proceedings, please write H. W. Cowper, 543 Franklin Street, Buffalo

PROFESSIONAL ADVICE

Mrs. Tweet Will the operation be dangerous, doctor?

Doctor Now don't you worry about that. You can't buy a dangerous operation for only \$50

—Selected

children would have been recognized and treatment instituted for several months or years. Since favus chiefly affects people in an uneducated stratum of society, one cannot trust the history of lack of infection in other members of the family. It is best to examine personally the intimate contacts of the patient

Eradication of the Disease

The keynote to treatment of a patient with favus is epilation of the infected hair. We know of no medicinal preparation (fungicide) that is curative without the concomitant use of depilatory measures. Active treatment may be discussed under the following Preliminary Local Applications, Epilating Measures, and Aftercare When X-Rays Are Used.

Preliminary Local Applications—While the disease as it affects the scalp is fundamentally a follicular infection (with invasion of the hair shaft), the microorganism also proliferates on the surface of the scalp to produce a thick crust. Before any depilatory procedure is instituted it is advisable to remove all crusts and reduce the amount of inflammation of the scalp to a minimum. Besides ridding the scalp of a nidus of infection, which may reinfect other hair follicles, it is important to clean the scalp, to reduce severe inflammation, in the presence of which it is inadvisable to use x-rays, and to eliminate thick crusts that would tend to filter out some of the rays and reduce their effect. Manual removal of the crusts by forceps may be accomplished after they have been softened with a bland oil. The same result may sometimes be obtained, if the crusts are not too thick or too extensive, by the use twice daily of an ointment containing 4 per cent each of salicylic acid and sulfur precipitate and by washing the scalp thoroughly with soap and water at intervals of two or three days. The average time required for the preliminary local treatment is three weeks.

Epilating Measures—Some form of epilating treatment is requisite in the treatment of favus of the scalp. If the disease is limited in extent, hand epilation using a blunt forceps, with selection of diseased hair made certain by carrying out the procedure under filtered ultraviolet rays, is adequate and preferable to the use of x-rays. X-ray epilation is indicated in cases where the disease is widespread over the scalp. Such therapy must be carried out with due caution, and to obtain good results the machine must be accurately calibrated and the operator of the machine must be well trained.¹ The following 2 cases

illustrate the clinical type in which manual epilation may be used with success.

Case Reports

Case 2—N. A., a white woman aged 21, was born in Arabia and had been in this country for the past two years. The disease had been contracted ten years before. Examination disclosed irregular, dollar-sized patches on either parietal region with a few other lesions scattered over the scalp. There was considerable atrophy and moderate crusting, and fluorescent hairs in the patches were observed in filtered ultraviolet rays. The diagnosis of favus was verified by culture. The application for six weeks of an ointment containing salicylic acid and sulfur precipitate resulted in the disappearance of all crusts. She reported to the clinic once a month for four months at which times manual epilation was carried out. A month later only one infected hair was present, and in two months there was no evidence of any infection. During the course of treatment the normal hair was left uncut and, although this increased the difficulty of finding some of the infected hairs, it was nevertheless possible to effect a cure. It is obvious that in certain instances it is advisable to attempt a cure without cutting the hair short in order to obtain the cooperation of the patient.

Case 3—L. S., a woman aged 19, was born in Italy. She contracted favus of the scalp nine years before, previous to coming to the United States. Examination disclosed only two small patches on the scalp in which there was marked atrophy and moderate inflammation with crusting. Positive results were obtained by the fluorescence test, by the direct mount, and by culture, confirming the diagnosis of favus of the scalp. Treatment by means of local applications and manual epilation of diseased hairs at intervals of three or four weeks resulted in the finding of only two infected hairs after four months and none thereafter. Four months later no evidence of activity was present, although there was marked atrophy of the scalp at the sites of the prior infection.

We have records of scalp infections due to *A. schoenleini* in 10 children during the past year, all of these patients showed localized patches of recent origin. Cure was obtained in every case by using various local applications combined with manual epilation at regular intervals. In each case the disease was eradicated within three months, and later observations revealed no recurrences.

The fact that cure may be obtained by means of epilation with forceps, combined with topical applications, should be kept in mind as a possible method of treatment in cases of recurrence following x-ray therapy. We advise the concomitant use of salves to prevent

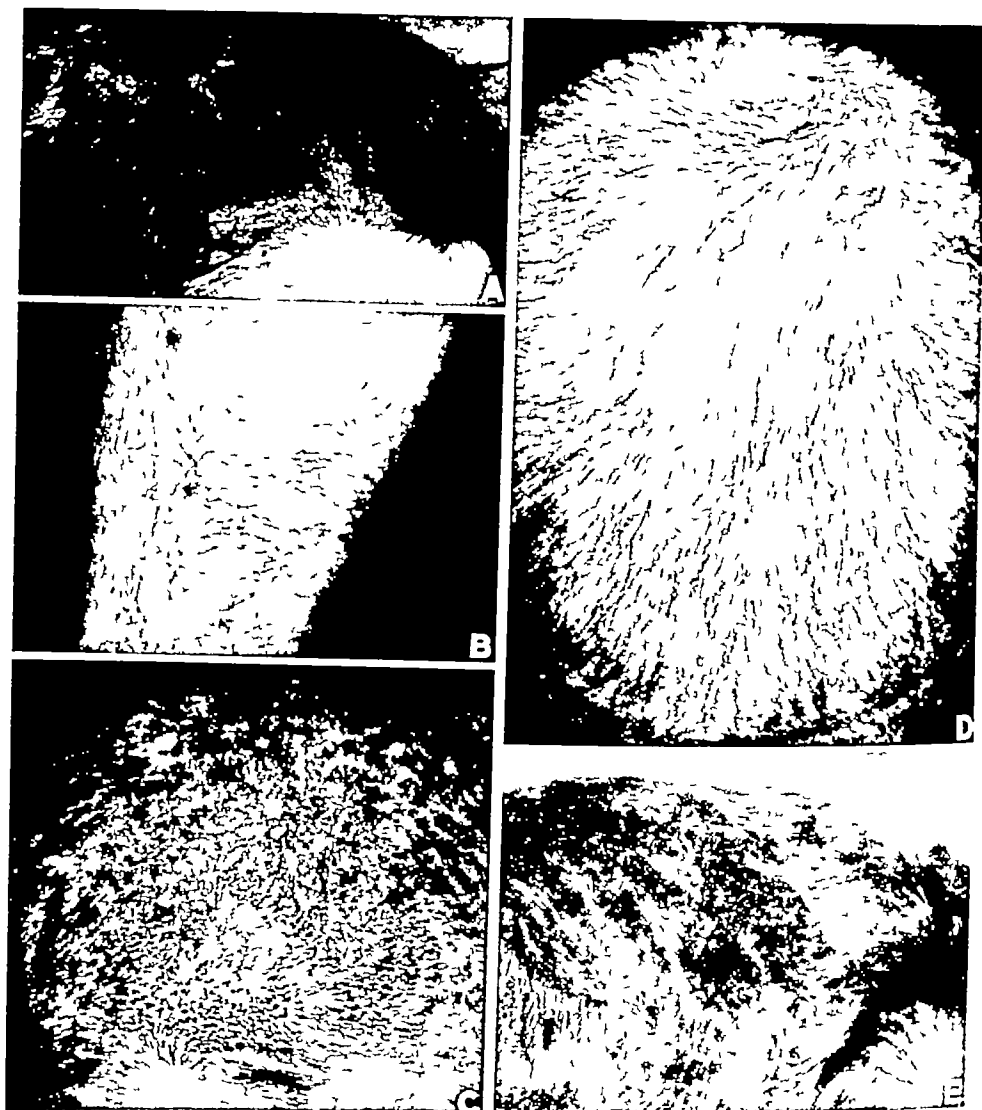


FIG 1, CASE 1 Aspects of a case of favus under treatment (A) Thick crusts (scutula) covering almost the entire scalp are partially obscured by the vigorous growth of hair (B) Small follicular crusts on the right leg (C) Six weeks later the scalp is free of crusts Treatment consisted of the daily use of a sulfur ointment, frequent shampoos, and the removal of loose crusts by forceps on her infrequent visits to the clinic Many infected hairs still remain The scalp is now ready for x-ray therapy (D) Three months after the epilating dose of x-rays a few infected hairs are discovered when the scalp is examined in filtered ultraviolet rays These hairs are removed by forceps (E) Nine months after the x-rays were given no infection is present and there is marked regrowth of hair Small areas of atrophy scattered over the scalp are well concealed

fection involving almost the entire scalp but with less crust formation than in the case of her sister's scalp Fluorescent hairs were demonstrated on most parts of the scalp except over the occiput Microscopic and cultural studies verified the diagnosis of favus

(3) Two children in the family of her sister (M M), a girl of 6 and a boy of 4, had infections

of the scalp, in both instances limited to small areas In both cases cultures proved the diagnosis of favus The father of the children was uninfected

Had a definite effort not been made, it is unlikely that the disease as it affected these 5

PRACTICAL OPERATION OF PRESERVED BLOOD AND POOLED PLASMA PROGRAM IN THE SUBURBAN HOSPITAL*

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Each issue of each medical journal presents us with certain new procedures. Many are desirable, some seem indispensable, and in their incipency are the function of our large teaching hospitals. The vast majority of patients, however, are cared for in the average 100- to 200-bed hospitals. Therefore, any advance to be enjoyed by the general public must be adapted to practical use in the suburban or smaller urban hospitals.

The advantages of a preserved blood program were obvious to us, and in February, 1939, at the request of the Surgery Director a trial bank program was started at the White Plains Hospital. This has progressed satisfactorily and today includes a preserved plasma program, which has been accepted as a legitimate and necessary department of our hospital and furnishes preserved blood and plasma for several nearby hospitals.

I review here the essential details of this program, the stumbling blocks encountered, and the methods of avoiding these, together with the evolution of this project into its present mature state, with the hope that it may stimulate the introduction of similar programs in hospitals of comparable size. The practical aspects of such a project are stressed.

Organization

The blood and plasma bank should be initiated and operated by a team consisting of a clinician, a pathologist, an experienced laboratory technician, and a competent graduate nurse experienced in operating room technique. The team should be headed by the clinician or the pathologist. Each member should understand every detail in the operation of the program.

Established blood banks in the vicinity should be visited by the entire group. If none is operating locally, a visit to the nearest large hospital bank should be arranged. An understanding of the work of Elliott,¹ DeGowin,^{2,3} and their contemporaries is invaluable. Scudder⁴ and Bull and Drew⁵ furnish analytic data which aid in a broader understanding of changes in stored blood and

plasma. Douglass⁶ thoroughly reviews the entire subject of blood transfusion.

Equipment

During the last year there has been made available commercially a system of prepared sterile vacuum bottles adaptable to each step in the program. These are relatively inexpensive and have simplified the entire procedure to such an extent that we now consider home-made systems and containers used in the beginning as impractical for the smaller hospital. The system can be operated entirely as a closed one, practically eliminating all possibility of contamination. Together with the technical accessories necessary for use, it has been found thoroughly efficient after months of operation and is described herewith.

The following containers are all hermetically sealed, sterile, and nonpyrogenic. They are capped with rubber stoppers that are covered with two rubber diaphragm seals. A metal cap covers these. Each container is used once only.

Fig 1(A) shows the vacuum transfusion bottle containing 70 cc of 2½ per cent sodium citrate in physiologic saline solution, capacity over 500 cc, used to withdraw blood from the donor. Blood is stored in these bottles and transfused from them.

Fig 1(B) shows the vacuum centrifuge bottle, empty, capacity over 250 cc, used for centrifuging plasma aspirated from outdated blood in the transfusion bottle. This bottle may also be obtained with anticoagulant solution so that blood may be withdrawn directly and centrifuged for plasma immediately. (This avoids transfer from transfusion bottle.) This bottle is designed to fit into a trunnion cup for centrifuging, described below.

Fig 1(C) shows the vacuum pooling bottle, capacity 1,000 or 2,000 cc, into which is aspirated the plasma after centrifugation from the centrifuge bottles. Pools of plasma from four bloods or less are collected in the 1,000-cc bottle, and pools from four to eight require the larger 2,000-cc bottle.

Fig 1(D) shows the vacuum plasma bottle, containing 250 cc. of normal saline, capacity over 500 cc. Approximately 250 cc of plasma from the pooling bottle is aspirated into the vacuum plasma bottle, which is then stored as dilute pooled plasma and from which plasma is transfused.

Fig 2(A) shows a micrometer valve and needle which may be completely disassembled for clean-

* The technical assistance of D D Johansen, P N Mott, and E M Smith is acknowledged. Photographic studies are by M Forward.

Attending Surgeon, White Plains Hospital.

the spread of the infection and to bring about a mild inflammatory condition of the scalp as an aid to epilation. Medicinal topical treatment is not alone curative in this form of scalp infection

Aftercare When X-Rays Are Used—Following an epilating dose of x-rays, boric acid ointment (U S P) may be applied to the scalp morning and night. This prevents the development of crusts and limits the spread of infection from one follicle to another. The use of ointments or other preparations containing mercury, sulfur, and many other drugs should be avoided during the first three weeks following the exposure to roentgen rays. After three weeks when the hair begins to loosen it is permissible to prescribe an ointment containing 5 per cent ammoniated mercury. A more complete epilation may be assured by the application and immediate removal of strips of adhesive. We strongly advise against leaving adhesive applied to the scalp overnight or for any extended time, since this increases the likelihood of spread of the infection and often brings about pustulation and favors secondary infection. At this and subsequent visits the patient should be observed under the filtered ultraviolet rays. About two or three months after the epilating dose has been administered is a crucial time, since there are almost always infected hairs which then make their reappearance and, if left, will bring about a recurrence of the disease (Fig 1D). Manual epilation in filtered ultraviolet rays is sufficient to eradicate these limited numbers of diseased hairs. The patient should not be discharged until there

have been two examinations, one month apart, with negative results

Summary

Many cases of favus of the scalp show neglect due to ignorance of the patient or to partial relapse following inadequate or poorly controlled treatment. The slow onset and mild symptoms may mask the disease for months or years. Treatment requires special consideration of the nature of the infection but cure may be confidently expected.

Case-finding should be attempted by examination of the other members of the family and other close contacts or associates to trace the origin of the infection and to bring all cases of the disease under treatment. The patient with favus of the scalp should also be examined for lesions of the nails and of the glabrous skin.

Preliminary treatment by means of ointments is advisable to soften and remove the crusts on the scalp. Unless the crusts are all removed, further treatment may be ineffectual. If only localized patches of the scalp are involved, manual epilation may be sufficient to remove the infected hairs. X-rays may be used to produce a defluvium in cases of widespread involvement. The proper after-treatment following a depilating dose of x-rays is important to bring about cure and prevent relapse of the infection.

999 Fifth Avenue
121 East 60th Street

Reference

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MEETING OF SCIENTIFIC PHOTOGRAPHERS

The Biological Photographic Association, an international group of photographers in the natural sciences, will hold its eleventh annual meeting in the Hotel Buffalo, Buffalo, September 11-13.

The program, in which a number of outstanding photographers and other technical experts will participate, emphasizes this year methods and processes which are likely to contribute to the national defense.

The annual salon, now well known to photographers through the pages of the photographic magazines, will again be a prominent feature of the meeting. Visitors are welcome.

For further information write the Secretary of the Biological Photographic Association, University Office, Magee Hospital, Pittsburgh.

DRESS REHEARSAL AT FIRST-AID POST

One of the first-aid posts in London which has not received a sufficient number of casualties to satisfy its large and zealous staff has, under the direction of its medical officer, instituted a system of faked casualties, which are attended with the same care and routine as if they were from an actual incident, says the *British Medical Journal* for February 1. An elaborate "make-up" has been introduced under the direction of a quartermaster who is skilled in this art, and the work is carried out as carefully as anything done behind the scenes at a theater and is as realistic in its results. Cellophane, vaseline, and various colored dyes are used to give a close resemblance to the appearance of a raw wound, and in the case of one of the frequent "victims"—an orderly with histrionic gifts—the resemblance is assisted by his disordered movements and mutterings.

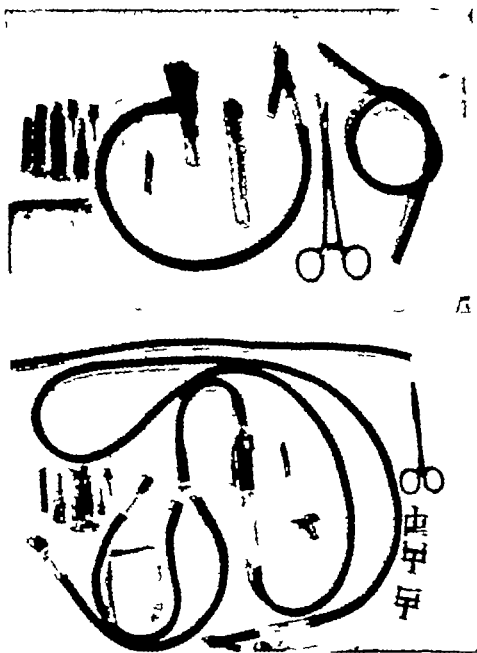


FIG 3 (A) (top) Blood-taking set, (B) blood- (or plasma-) giving set

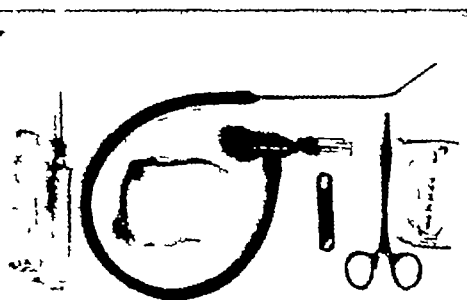


FIG 4 Aspiration set for plasma conversion

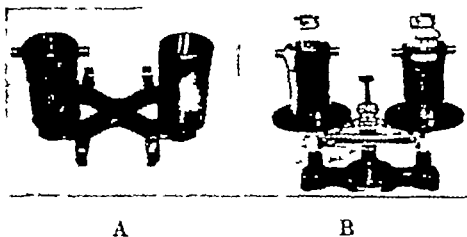


FIG 5 (A) Trunnion cups and centrifuge head (B) trip balance in use

found willing to pay their obligations in part by donating a pint of blood. Therapeutic bleeding of selected hypertensives at periodic intervals constitutes an additional source of supply.

Once in operation, blood for the bank is secured from relatives or friends of patients requiring transfusion. They should be contacted as soon as transfusion is decided upon or before that time in critical cases where blood or plasma transfusion is anticipated. Many operative cases are instructed to furnish donors on admission. Frequently, two or three will present themselves and we have had as high as a dozen volunteer blood for a critical patient who was employed by a company with a large number of employees. Groups such as the American Legion, firemen, local police, and state troopers frequently will volunteer. Ideally, they should come in on a fasting stomach of at least four hours. Blood taken thus is less likely to exhibit food allergens, which may cause reaction, if such blood is used later for plasma conversion, such plasma will appear clearer because of reduced lipemia. This clarity is chiefly of aesthetic advantage and not practically significant in our experience. Donors who admit recent ingestion of garlic or gin, or whose breath suggests this, should be rejected, since both may cause

transfusion reactions. In the operation of a small bank it is recommended that donors be bled as soon as they present themselves, even though they may have ingested food a short time earlier. If this is not done, there will be a certain donor loss with ensuing difficulty in keeping a sufficient supply of blood on hand. Donors are questioned and checked over physically to conform with state regulations.¹⁴ Although it is doubtful whether active syphilis can be transmitted by transfusion of preserved blood, a donor is rejected where a history of syphilis is obtained or the scar of a healed chancre is found, even though he may have had adequate treatment and the Wassermann reaction is negative. Experiments in progress elsewhere⁷ suggest that blood inoculated with spirochetes and refrigerated loses its infectivity after twenty-six hours or less.

Collection of Blood

Blood may be withdrawn by any member of the house staff. We have delegated this procedure to a graduate nurse. At night or in odd hours a house staff member substitutes. The donor is bled in a special room delegated exclusively to this program, where no distractions, such as emergency cases coming in, can upset his equanimity. It is well to

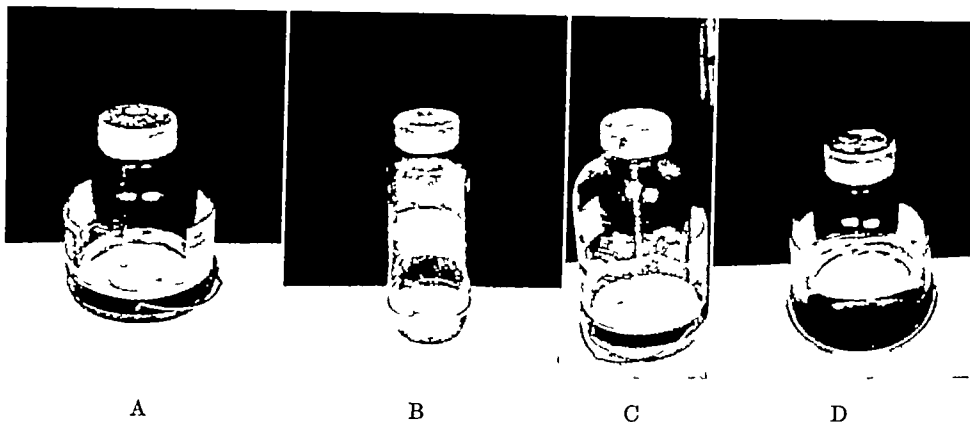


Fig 1(A) Vacuum transfusion bottle, (B) vacuum centrifuge bottle, (C) vacuum pooling bottle, (D) vacuum plasma bottle

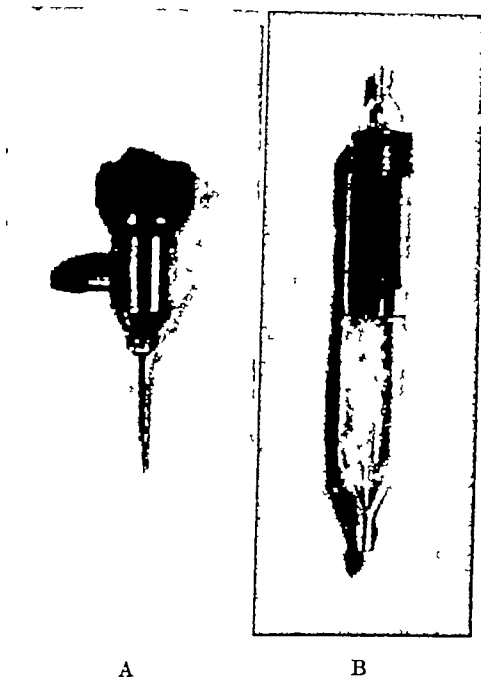


Fig 2(A) Micrometer valve and needle, (B) filter and drip unit

The needle may be plunged through the rubber diaphragms and thick rubber stopper of any of the vacuum bottles. The valve head is tightened or loosened to regulate exactly the desired vacuum pull during any transfer process.

Fig 2(B) shows a stainless steel mesh filter with drip unit, used in both blood and plasma transfusions.

Fig 3(A) shows a blood-taking set (donor set). This includes the following: micrometer valve,

rubber tubing, glass adapter, 16-gage needle, novocain, 2-cc syringe, clamp, tourniquet, and dressings, all contained in a tray.

Fig 3(B) shows a blood-giving (or plasma-giving) set (recipient or dispensing set). This includes the following: stainless steel filter and drip, Y tubing allowing for attachment of two bottles, tubing and needle set for vein, novocain, syringe, and accessories, all contained in a tray.

Fig 4 shows an aspiration set for plasma conversion, note the 6-inch, 12-gage aspirating needle. In addition, the set contains the following: micrometer valve and tubing, air-filter unit, clamp, glass graduate, and wrench for tightening needle on micrometer valve, all contained in a tray.

Details of preparation and assembly of these sets are given below under "Preparation of Equipment." Note that each system is sealed within itself, with ends rubber-capped until opened up to use. At least three taking sets and three giving sets should be kept ready for use at all times. Only one aspiration set for plasma conversion need be kept in readiness.

The vacuum centrifuge bottles fit into brass trunnion cups, which are suspended from a special centrifuge head (Fig 5(A)). These are available commercially and fit the standard No 1 International Centrifuge found in most laboratories.

An accurate trip balance for balancing centrifuge bottles in trunnion cups is also necessary (Fig 5(B)). These are part of the average hospital's laboratory equipment.

Requirements for the refrigeration necessary to this program are given under "Preservation."

The Donor Problem

In the beginning, blood for the bank is obtained from volunteer donors on the attending staff, the house staff, or the nursing staff. Charity patients who have recovered will be

that the blood is ready for use. If the Wassermann is reported positive, the blood is immediately withdrawn from the bank to be discarded or used for routine laboratory work, and this is noted on the record card. Occasionally, it is necessary to use blood before a Wassermann has been reported, and in this case the hypersensitive, quicker Laughlen test is done. Should this be reported positive the blood is not used until the Wassermann is reported. Our blood loss due to positive serology has been 3 per cent, and this is our chief reason for discarding blood. Other reasons are failure to secure sufficient blood for tests in the pilot tube and suspected contamination due to poor technique in taking blood.

When a transfusion is proposed, the laboratory types the patient and cross-matches his blood with that in the pilot tubes from a bottle of the same group or an acceptable group in the bank. Group O recipients may be given only group O blood, group B may be given group B or group O, group A may be given group A or group O, group AB may be given AB, A, B, or O. If type AB blood is to be used for transfusing, both the donor's and recipient's bloods are subgrouped and properly cross-matched as A_1B or A_2B if original cross-matching is not compatible. Subgrouping and proper matching of A_1 and A_2 should likewise be done when donor A and recipient A bloods do not cross-match. Absorbed B serum for this purpose is commercially available. Lundy⁶ reports the highest incidence of untoward reactions with those group AB recipients who are transfused with group AB blood and fewer untoward reactions when any of the other three groups are transfused to a group AB recipient. Despite this, most clinicians will still demand type AB blood for type AB recipients. Lundy also states that the cross-matching of blood has not been found necessary, and it is not done at the Mayo Clinic except where a history of untoward reaction to a previous transfusion is obtained. The work of Levinson and Cronheim⁷ on absorption of isoagglutinins is interesting in this connection. We still insist on cross-matching as a check against our original typing. Diagnostic typing serums of known high titer (at least 1 to 40) are used. This is prepared from pooled donors' serums and in our experience gives quicker agglutination than most commercially available serums for typing (with the exception of one, now available, which we have titered as giving agglutination at a dilution of 1 to 320 within five minutes).

When the compatibility of the blood has

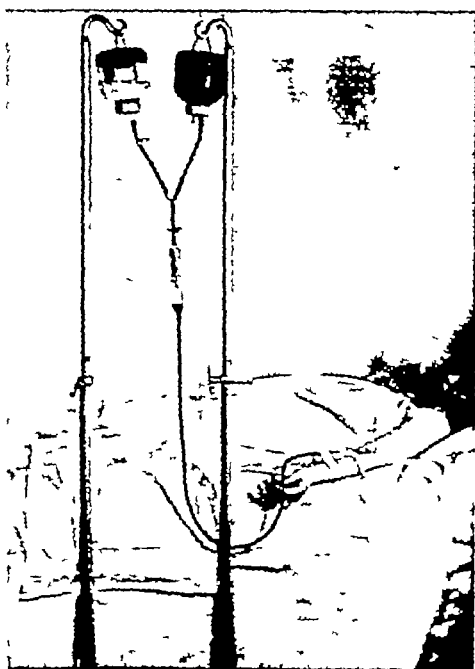


FIG 8 Giving blood

been determined, the bottle, with one record card attached, is sent to the patient's bedside. The duplicate record card is retained for the blood bank file, and data identifying the recipient is annotated thereon. Pilot tubes are held for twenty-four hours for any additional check should the patient experience a reaction.

Transfusion of Preserved Blood

Actual transfusion is routinely done at the patient's bedside, unless the need for dissection and exposure of a vein seems necessary or in the case of an infant when the procedure may be done in the operating room.

The blood-giving (recipient) set (Fig 3(B)) is opened and assembled by the transfusing physician, usually a member of the house staff. The blood bottle is inverted, assuring a mixture of cells with plasma, and connected to the set as in Fig 8. Sets are so arranged that either physiologic saline or blood can be infused interchangeably. The tubing is cleared of air with saline, thus avoiding blood waste. As soon as the saline is dripping and the needle is fixed in the vein, the blood is cut in and the saline clamped off. Should the red cells pack in the lower part of the bottle or the filter, thus slowing the drip, saline is again cut in, flushing the tubing and,



FIG 6 Taking blood from donor, bottle should be gently agitated

have the table tilted slightly with the head low. The arm is prepared with iodine and alcohol, and a tourniquet or blood pressure cuff is applied. The nurse dons sterile gloves, a taking set (Fig 3(A)) is opened and assembled, and the needle is inserted into an antecubital vein. The micrometer valve is opened, allowing just sufficient vacuum action to pull over a steady jet of blood, which drops into the citrate solution in the vacuum transfusion bottle (Fig 6) during collection. When the required amount has been withdrawn the tourniquet is released, and the micrometer valve is screwed down tight shutting off the vacuum. The needle is withdrawn from the blood bottle stopper which seals itself. The needle is withdrawn from the donor's vein and then held over a pilot tube (test tube) containing 1 cc of a 2½ per cent sodium citrate solution, and a few drops of blood are allowed to drop in for cell suspension for typing. Two cc of blood is allowed to drop into a second pilot tube to clot for cross-matching, and the balance (at least 5 cc) is drained into the third tube for the serologic test. These tubes are placed in a rubber collar rack attached to the blood bottle (Fig 7(A)). The name of the donor is written on adhesive strips, one is attached to each pilot tube and one to the bottle of blood. Duplicate record cards are filled out and attached to the bottle, which is immediately placed in the refrigerator. The donor is given an ounce of whiskey or a pint of milk, as elected, and is kept at rest or in a sitting position until we are certain

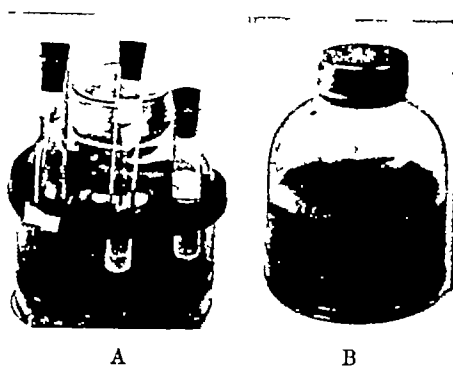


FIG 7(A) Pilot tubes in rubber collar rack, (B) "fibrin foam" topping blood

that his cerebrum has become adjusted to a reduced blood volume. A fainting donor is a poor advertisement for the project. The time required for collection of blood is usually five to 10 minutes.

Preservation

Any type of automatic refrigerator may be used, whether powered by electricity or gas. There must be no oscillation from vibration of the refrigerating mechanism, for agitation of the cells is undesirable. A temperature setting of 2 C is satisfactory. An inexpensive maximum and minimum recording thermometer is hung inside, and each day the technician notes the range during the previous twenty-four-hour period and sets the markers back with a magnet. Current shutoff or inefficient operation of the refrigerator is thus detected. When defrosting becomes necessary the blood should be transferred temporarily to another refrigerator, avoiding agitation. A most satisfactory unit that keeps the temperature variation to within 1 C of the desired setting is now available. This refrigerator is made especially for blood banking and is conditioned for humidity so that defrosting is never necessary.

Laboratory

Each morning the technician types all bloods received during the previous twenty-four hours, noting the type on the two record cards. One card is replaced on the blood bottle in the refrigerator, the other card is placed under the appropriate type number in the "incomplete" section of the blood bank file. A Wassermann is run and, if reported negative, the record card is so marked and transferred to the "complete" section of the file under the appropriate blood type, indicating

trate saline solution blood may be infused effectively at twenty days. If the plasma program is adopted and used, it is possible for even the smaller hospital bank to have fresh blood on hand without the costly procedure of throwing away outdated blood and paying professional donors for replacement.

Plasma Conversion

The blood bank file is checked once weekly for outdated blood, and the bottles themselves are checked for specimens showing advanced hemolysis even though not outdated. These are removed for conversion to plasma. Conversion is done in the special blood-plasma room, and sterile precautions are observed by the workers.

Whether pooling of plasma is a valuable precaution against serious reaction in the occasional plasma of high agglutinin titer is a moot issue at this time. Using a closed system where an additional process does not increase the possibility of contamination, we have elected to do pooling, with plasma from 4 to 8 pints or more of blood making up one pool. Where pooling is not done, a single aspiration step replaces steps two and three to be described below.

Where blood is taken primarily for the purpose of turning out plasma, it should be withdrawn from the donor into the vacuum centrifuge bottles containing citrate solution, and a single aspiration step then replaces the three described below. If in this situation pooling is done, two aspiration steps will be necessary.

It is noteworthy that the Baxter vacuum system for pooling and transferring plasma, which is described here, was considered safest in connection with the Blood-Plasma-for-Great-Britain Project, sponsored by the Blood Transfusion Betterment Association.¹¹ It is also significant that no contaminations are recorded with a uniform system completely closed from donor's vein to final plasma bottle.

Aspiration—Step One

The plasma aspiration set (Fig 4) is opened, and the bottles of blood selected are transferred from the refrigerator to the plasma conversion room, avoiding agitation.

The remaining vacuum in the blood bottles is exhausted with the ingress of filtered air. The unit for this purpose consists of an 18-gage needle attached to the barrel of a 10-cc syringe packed nearly full with absorbent cotton (Fig 9(A)). The entire unit has been autoclaved previously as a part of the plasma



FIG 10 Transfer of plasma from blood to centrifuge bottle

aspiration set. The needle is passed through the rubber stopper, with the thumb held over the open end of the barrel to control the sudden inrush of air. The thumb is gradually released, completely neutralizing the negative pressure within the bottle.

A vacuum centrifuge bottle (Fig 1(B)) is required for the plasma from each 500-cc bottle of blood. The metal cap is removed from the former, and with the micrometer valve cap closed down tightly its needle end is plunged well through the rubber stopper. The aspirating needle, connected with the other end of the rubber tubing, is plunged through the blood bottle stopper, with the tip just below the plasma surface, and the micrometer valve is opened, withdrawing the plasma (Fig 10). It is permissible to draw over some cells during this step (this being of no consequence since these will be thrown down later with centrifugation after which a second aspiration is done).

This first aspiration step is done successively with each bottle of blood to be converted to plasma.

Centrifuging

The centrifuge bottles containing plasma are next placed in the special trunnion cups (Fig 5(A)), which have been chilled previously in the refrigerator. These must be in absolute balance on opposite sides of the centrifuge head. The importance of this cannot be overemphasized. To accomplish this, a trip balance (Fig 5(B)) is used, and any inequality in weight is eliminated by the ad-

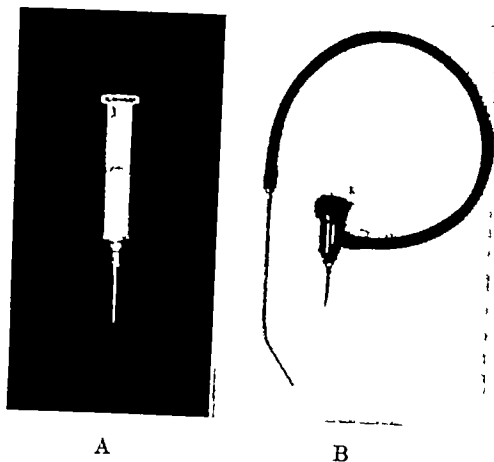


FIG 9(A) Air-filter unit (for releasing vacuum),
(B) detail of transfer assembly

if necessary, diluting the blood in the bottle just sufficiently to break up the packing. It is advisable to agitate the blood bottle a few times during the transfusion, thus preventing cell packing. Rarely when blood has been improperly taken, "grape jelly" consistence of the blood clogs the filter. Cutting in saline will usually clear the system again but, if more blood of jelly consistence is noted in the bottle, this should be discarded and another bottle should be cross-matched, the vein meanwhile being kept open with saline. "Fibrin foam" (Fig 7(B)) may also bog the filter. This comes from excessive agitation of the bottle during the operation of taking blood, from taking blood too rapidly, from an air leak in the taking system, or from other improper taking technic.

Blood is never warmed, since hypercritical temperature may effect irreversible reaction of its protein constituents. The bottle may be allowed to stand at room temperature for one to two hours before giving, if desired. We have not observed ill effects from giving cold blood at average speeds. At least thirty minutes is consumed in infusing 500 cc of blood unless the patient is in *extremis*. The rate of administration can be varied with the drip tube clamp and by the size of the needle. Blood (or plasma) is always filtered, although plasma may be given subcutaneously or intramuscularly without filtering. When infusing more than one bottle of blood to a patient at one time, we take the precaution of cross-matching each blood with each other one, as well as with the patient, although this is not universally considered necessary. After transfusion the record card is completed by

the transfusing physician, identifying the recipient and noting any reaction, and turned in to the record room. Any reaction is also noted on the laboratory record card. A transfusion sheet is filled out and attached to the recipient's hospital chart.

Outdated Blood

The most frequent question arising in connection with the preserved blood program is "how long should the blood be kept?" In our experience the period of sufficient viability for effective use in transfusion is not constant. Earlier reports by the Russian workers cite transfusion of blood three to four months old. Originally, we used blood six to eight weeks old without ill effects. An important criterion is the presence of excessive hemolysis, which can be gaged macroscopically by the degree of "pinkness" in the plasma just above the interface between the cells and plasma line. Some bloods will show minimal hemolysis at four weeks, other bottles will show "pinkness" within forty-eight hours. We attribute the marked discrepancies to a variation in the technic of withdrawal and to variations in the physiologic chemistry of the donor. Excessive or insufficient agitation, improper sealing in the taking system, allowing air to bubble through the tubing with the blood, the need for stopping during withdrawal to change needles or veins, while partial clotting takes place in the tubing, and complete exhaustion of the vacuum before finishing withdrawal—all may contribute to increased red cell fragility. Perusal of the literature shows general agreement that relatively few significant changes occur before five to seven days. In discussing the age limit, it should be understood that fresh blood is still used for certain morbid conditions where the tissue in its unchanged state is desired. But in shock and acute hemorrhage—operative, postpartum, or spontaneous in origin, so frequently the indication for transfusions in the suburban hospital—it seems ridiculous to quibble about the value of blood that is immediately available, whether a few days or even a few weeks older than it ideally should be. The number of white cells, prothrombin value, potassium content, and electrophoretic pattern of proteins in a pint of blood being transfused under such circumstances are obviously of little importance when the alternative is delay that may be fatal.

The average age of preserved blood infused here is under seven days. Alsever¹⁰ states that with the use of his special dextrose ci-

late solution into the pooling bottle by vacuum to cover the entire batch.

We have been furnishing plasma to other institutions where it is held for emergency use, and we cannot predetermine the period of storage and, therefore, observe our control cultures for three weeks before releasing any plasma from the pool. To date we have not observed any positive cultures, and we have had no reason to discard any plasma. Seventy-two-hour negative cultures are satisfactory if the plasma is to be used within a reasonable time. Plasma is stored under refrigeration.

Dilute plasma, after standing for a period, may show fibrin veils or shreds. These are dissipated by shaking but may reform with standing. They are removed in filtration, and all plasma should be filtered with the same technic as described for blood transfusion. A turbid appearance of the plasma from certain pools may be ascribed to lipemia existing at the time the blood was originally withdrawn. Thus and the pinking due to hemoglobin in solution are of no concern in administration in our experience. Refrigerated plasma will appear turbid. This is greatly reduced after standing at room temperature for a short time.

Like others, we have had absolutely no reactions of any type from the use of plasma.

Reactions

By far the largest number of reactions from blood transfusion and nearly all reactions from uncontaminated plasma transfusion and intravenous infusion of solutions result from the presence of pyrogenic substances in the infused mediums or in the equipment used therefor. Their prevention is so predominantly important that certain principles set forth by Walter¹² are summarized below. The preparation of our equipment is based on these principles.

Since standardizing our present system, blood transfusion reactions have been reduced to less than 8 per cent and none could be construed as pyrogenic. They were classified as allergenic or hemolytic. We have had no fatal or permanently untoward reactions to date. The majority of our reactions occurred where fresh blood was used. Approximately 10 per cent of our transfusions are still done with fresh blood, the chief indications being puerpera and other dyscrasias, as well as infectious and leukopenic states.

Untoward reactions to transfusion have been noted more frequently in febrile cases, in infected pelvic cases, preoperatively and

postoperatively, and in postoperative hysterectomized patients. It is believed that garlic or gin ingested by donors prior to bleeding is a source of transfusion reactions.

Pyrogenic Reactions and Their Avoidance

Walter¹² explains in detail the principles for prevention of reactions due to impurities in solutions and the apparatus used for intravenous therapy with particular reference to pyrogens. Strangely enough, an accurate concept of the nature of pyrogens is of no interest to many physicians and is ignored by many in responsible positions on nursing staffs. Walter emphasizes that the safety of intravenous fluid administration depends upon a clear understanding of the meaning of the term "chemically pure" and its differentiation from the word "sterile."

Our experience here, with a limited staff for investigative purposes, has led us to the conclusion that the commercially available parenteral fluids, while slightly higher in cost, infinitely simplify our problems, reduce the number of technical assistants required, and obviate the transient flurry of reactions so common in many hospitals when one or more of the trained technical assistants are absent or on vacation, with a subsequent break in the meticulous technic which is essential. Regardless of whether solutions for intravenous therapy are prepared by the hospital or are obtained commercially, the accessory apparatus for administration (needle, tubing sets, filter, etc.) must be prepared so as to be "pyrogen-free" as well as sterile. Centralized responsibility for cleanliness and preparation is indispensable. The pertinent principles underlying elimination of pyrogens and their reactions are herewith restated.

1 Chemically pure distilled water will not cause reactions when injected intravenously.

2 Such water is readily contaminated and rendered pyrogenic by air-borne bacteria.

3 Berkefeld filtration does not remove the offending substance.

4 Pyrogens are filterable, thermostable exotoxins, removable by proper distillation.

5 To remain pyrogen-free, water must be hermetically sealed in sterile containers.

6 Purity of distilled water at the source must be checked frequently.

The common decolorization test with sulfuric acid and KMnO_4 is of little value in detecting amounts of pyrogen in water which may be responsible for intravenous reactions. The following tests are of significance.^{12,13}

1 Biologic the distilled water in question is made to approximate physiologic concentration of sodium chloride and injected into the marginal ear vein of carefully controlled rabbits. Variations in rectal temperature should not exceed $1\frac{1}{2}$ degree (F), which is considered physiologic.

2 pH this may vary between 5.5 and 7.0



Fig 11 Transfer from pool to final plasma bottle

dition of water to the cup until the indicator remains absolutely stationary at exactly zero.

Centrifuge for one hour at 2,000 revolutions per minute, tachometer reading. With this weight the rheostat reading is not reliable. Five to ten minutes are required to get up speed and again to decelerate. The brake on the centrifuge must not be used in decelerating. Because of the terrific throw and the serious consequences of anything "letting go" during centrifuging, it should be an inflexible rule that this cannot be done except under supervision of a laboratory technician familiar with the procedure. After centrifuging, the bottles containing plasma are removed without agitation to the refrigerator, where they are held for not less than twelve hours, insuring settling of cells from any swirl induced while the centrifuge decelerated. A thin, solidly packed line of cells will be visible at the bottom of each bottle. Pink color in the supernatant fluid represents hemoglobin in solution in the plasma and is not objectionable.

Aspiration—Step Two—Pooling

After standing for twelve hours (usually overnight) in the refrigerator, the bottles are taken out without agitation. A plasma aspiration set (Fig 4) is opened and the proper size vacuum pooling bottle (Fig 1(C)) selected, depending on the number of centrifuge bottles of plasma to be run through as one pool. For a pool of four or fewer, a 1,000-cc pooling bottle is used, for from four to eight, a 2,000-cc bottle is used. The outer rubber diaphragms are removed from the centrifuge bottles containing the plasma, and the remaining vacuum in these is released with the air-filter unit described under "Aspiration—

Step One" (Fig 9(A)). The aspirating needle, rubber tubing, and micrometer valve assembly is again used, this time for transferring the plasma from the centrifuge bottles to the single large pooling bottle. Care must be exercised to avoid drawing over any of the packed red cells at the bottom of each centrifuge bottle. We waste only a few cubic centimeters of plasma from each centrifuge bottle (about 1 per cent) by careful teamwork during this aspiration. The tip of the aspirating needle in the centrifuge bottle must be advanced slowly as the plasma is pulled over, and the aspiration must be done extremely slowly as the red cell line is approached. If the tip of the aspirating needle is kept in contact with the side of the centrifuge bottle, less agitation of cells is likely during the aspiration and a better yield is obtained. As the cell line is reached the bottle may be tipped gently to advantage. Until the technic is perfected it is safer to waste even 10 to 15 cc of plasma rather than risk pulling over any cells in this step. This is important, because typing is not done before plasma transfusion and incompatible red cells can cause reactions.

When all the plasma has been transferred to the pooling bottle, this is inverted, mixing the plasma.

Aspiration—Step Three

Vacuum plasma bottles (Fig 1(D)) each containing 250 cc physiologic saline are used for the final aspiration, 250 cc of plasma from the pooling bottle is aspirated into each plasma bottle with the same type assembly as was used for the previous aspiration (Figs 9(B) and 11). During this final step it is necessary to release the mounting vacuum in the pooling bottle once or twice, using the air-filter unit described above. Each bottle now contains 500 cc of dilute plasma under partial vacuum. A few cubic centimeters are always left in the pooling bottle for a pool culture. If the finished dilute plasma is not to be used promptly, 5 cc of 1 per cent aqueous merthiolate solution is added to each bottle of 500 cc, giving a concentration of 1 to 10,000. This is accomplished immediately after the plasma has been pulled over from the pooling bottle by closing the valve, removing the aspirating needle, and inserting it into a graduated closed container of merthiolate. The valve is then opened, drawing over the merthiolate by vacuum. The valve is then closed and withdrawn with its attached needle. The rubber stopper seals itself. An alternate method is to draw a sufficient quantity of 1 per cent merthio-

late solution into the pooling bottle by vacuum to cover the entire batch.

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6. Purity of distilled water at the source must be checked frequently.

The common decolorization test with sulfuric acid and KMnO_4 is of little value in detecting amounts of pyrogen in water which may be responsible for intravenous reactions. The following tests are of significance.^{12,13}

1. Biologic: the distilled water in question is made to approximate physiologic concentration of sodium chloride and injected into the marginal ear vein of carefully controlled rabbits. Variations in rectal temperature should not exceed $1\frac{1}{2}$ degree (F), which is considered physiologic.

2. pH: this may vary between 5.5 and 7.0.

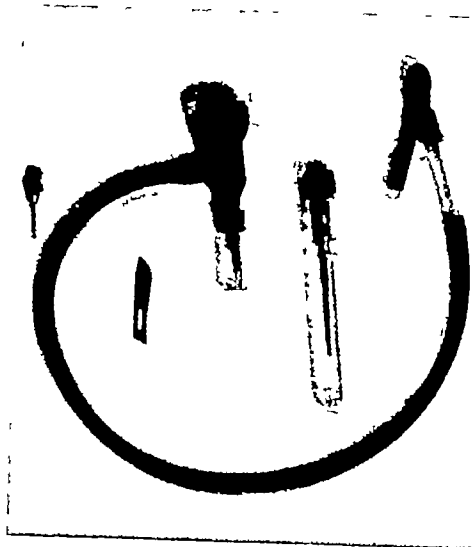


Fig 12 Capped system, completely closed for autoclaving

If these values are exceeded at either end, a carry-over of foreign substances in the still, such as ammonia, creosote, etc., is to be suspected.

3 Electrical resistance of the water or its reciprocal, the conductance, the values here may vary from 0.8 to 12×10^{-6} reciprocal ohms. This test also serves chiefly as an indication of an ineffective or improperly operated still.

Of the above, the first test is by far the most important. However, all should be repeated periodically on all solutions used for intravenous therapy and on water or solutions used for cleansing and preparation of apparatus used in connection with intravenous therapy. Their importance in the blood plasma program cannot be overstated. Many smaller hospital laboratories are not equipped or not disposed to perform these tests and, where this is true, recourse must be had to commercial laboratories.

Preparation of Equipment

Pyrex glassware or its equivalent should be used throughout because its stable annealed surface resists hydrolysis. Glassware must be free of original soil as well as of cleansing agents and alkalies, dried blood, bacterial growths, or dried fungi. After cleaning and final rinsing in preparation, the apparatus must be autoclaved at once or the entire preparation repeated. A responsible nurse who will faithfully carry out in meticulous detail the following routine is a "must" in this program.

After transfusion of blood or plasma (or infusion of intravenous solution) the entire set is immediately disconnected and immersed in a large basin of cold tap water for at least ten

minutes to loosen up blood and detritus in the system. Each piece is then individually washed by holding it under running water until it is grossly clean. Tubing is held up to the light and flushed until no dark areas are visible. If rubber tubing is soft it is discarded and a new length substituted. The micrometer valve is disassembled and thoroughly cleansed with freshly distilled water. The screw threads of the micrometer valve are anointed with two drops of glycerin and the head is screwed back half way. Stainless steel mesh filter is placed in fuming nitric acid for a period of one-half to twelve hours, varying with the amount of dried blood present on the mesh. Then it is removed with forceps and rinsed for at least fifteen minutes under tap water by placing the open end over the spigot. It is then allowed to stand in a cup of freshly distilled water for not less than fifteen minutes and placed on a towel to dry. Following this, it is flushed through with freshly distilled water and incorporated in the giving set with continuation of the technic as described. Needles occasionally become clogged and are cleared by flushing through with 12 per cent ammonia solution by means of a syringe. Each piece of the entire system is laid in a basin of freshly distilled water for not less than five minutes, and the system is then assembled and flushed through with freshly distilled water by gravity. Following this, it is flushed through with commercially obtained normal saline, also by gravity. The needle end of the micrometer valve is plunged through a rubber stopper into a glass vial, and the tip of the Luerglass adapter at the other end of the system is covered with a rubber cap (Fig 12). This keeps the system closed, in that steam for sterilization is generated from water in the residual saline of the flushing and no steam from the autoclave itself enters the system, thus avoiding another source of potential entrance of pyrogens. Each system is placed in a tray, wrapped in a double sheet, and immediately autoclaved at 20 pounds pressure for twenty minutes. If autoclaving cannot be done immediately, the entire routine must be repeated. Taking sets, giving sets, and plasma conversion sets are handled in this manner. A vacuum transfusion bottle or vacuum plasma bottles are also placed in the appropriate set for autoclaving so that the outside is sterile and better technic can be maintained during the operations of taking blood or converting to plasma. New glassware, needles, filters, and micrometer valves do not require special treatment other than the preparation listed above. Rubber tubing specially prepared at the source is obtainable commercially. All foreign material within the lumen has been removed previously and, when new prepared tubing is substituted, no treatment other than the above described is required.

We have found it impractical to autoclave rubber tubing more than six times. It softens up so that the pull of the vacuum is likely to cause

collapse, slowing up the operation of taking blood or interfering with steps in plasma conversion. In addition, the rubber in the lumen tends to stick and is difficult and time-consuming to free when cleaning. We discard it before this stage is reached.

Intravenous accessory equipment and needles are prepared with the same technique and, since its inauguration, no intravenous reactions have been reported.

Records

Before submitting to blood withdrawal, each donor is requested to sign a permit.

New York State requires the hospital to keep detailed and accurate records of all blood transfusions¹⁴. This is extended by interpretation of our local board of health to apply to plasma transfusions as well. The state likewise requires that a physical and serologic examination of the donor be made. Records for this purpose are filled out in duplicate by the taking physician and accompany the blood to the refrigerator. After the blood is typed, one card is placed in the open file under the proper type denoting availability. When blood is used this card is retained by the laboratory for its permanent files, and the other card is sent to the record room where its data are posted in detail in a large permanent record book, details on both the donor and recipient being entered. In addition, a transfusion sheet giving the pertinent data is filled out and attached to the recipient's hospital chart.

A perpetual inventory sheet is attached to the refrigerator, and available blood and blood awaiting serologic report are listed under headings "complete" or "incomplete". When blood is issued or received, an entry is made in the appropriate column under the actual date of the transaction, so that at any time the "assets" of the bank may be determined at a glance.

Economics

This program entails a minimum investment in permanent, nonexpendable equipment of about \$100 for such items as valves, filters, special centrifuge head, and trunnion cups. Other equipment is expendable and purchased as needed.

Our cost of expendable (consumable) equipment is approximately \$1.50 per transfusion of whole blood. This includes the vacuum bottle containing citrate solution, a complete set for taking and giving blood, including a vacuum bottle containing 500 cc of physiologic saline, whiskey or milk when elected by the donor, and a 10 per cent break-

age allowance. This figure does not include laboratory costs, hospital overhead, or the time of the operating room nurse in preparing equipment. On a similar basis, the cost of expendables is approximately \$2.75 per transfusion of 500 cc of dilute plasma including the cost of taking blood originally, conversion to plasma, and administration. Where blood is taken directly for plasma conversion, one step is eliminated, and the cost of expendables drops to approximately \$2.25. If pooling is omitted, this figure approximates \$2.00.

Hospital Charges

Patients' accounts are charged at professional donor rates for whole blood for each transfusion of blood or plasma given. They are credited in kind when friends or relatives replace the blood or plasma. Patients are also charged for the laboratory work of typing, cross-matching, and serology, this figure varying with their status in the hospital. In addition, they pay a service charge covering the costs of the sets used in taking and giving blood and plasma. This service charge replaces the larger charge formerly made when blood was taken and given in the operating room and, likewise, varies with the patient's accommodations in the hospital.

Value of Program

Since blood and plasma have been made readily available their use has increased rapidly. Not only has the number of patients receiving transfusion increased but the number of transfusions given to the individual patient and, frequently, the amount of blood per transfusion have increased. Thus, the bleeding but resectable intestinal carcinoma patient may receive not the usual 500 cc but twice, thrice, or many times that amount if clinically desirable.

During the year preceding the institution of our bank program, fewer than seventy-five transfusions were given. In 1939 the figure rose to 161, in 1940, to 306, and a monthly increment continues. In this connection it should be noted, however, that in December, 1939, the Hospital moved into new quarters and the average daily census increased from ninety-six in 1939 to 150 in 1940.

Several neighboring hospitals now use blood and plasma from our bank, thus increasing the turnover and assuring fresher blood for all.

Conclusions

1 The advantages of a preserved blood

and plasma program in an average suburban hospital have been brought out

2 The practical aspects of inauguration, operation, and management of such a program have been described

3 The simplicity and facility of the closed vacuum system have been emphasized The use of such a system has been shown to be foolproof in our hands and, by inference, in any small hospital No contamination, no untoward reactions with permanent sequelae, and no fatal outcome has been encountered

4 The adaptability of such a system for blood preservation with plasma conversion or for direct plasma production has been stressed and is independent of quantitative turnover

5 The achievement of such a program is dependent upon meticulous detail in preparation of accessory equipment used with the vacuum bottles, in centralization of control of the entire program, and in fullest departmental cooperation within the hospital

6 After the initial equipment has been obtained, the program is entirely self-sustaining,

and sufficient additional income can be provided from its operation to justify constant improvement in technical equipment and the addition of newer "wrinkles" as these are introduced

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AMERICAN COLLEGE OF SURGEONS TO HOLD CLINICAL CONGRESS IN BOSTON

The thirty-first annual Clinical Congress of the American College of Surgeons will be held in Boston from November 3 to 7, with headquarters at the Statler and Copley-Plaza hotels The twenty-fourth annual Hospital Standardization Conference sponsored by the College will be held concurrently About five thousand surgeons and hospital executives from all parts of the western hemisphere are expected to gather in Boston for these meetings, the program for which will include clinics and demonstrations in local hospitals and medical schools, as well as scientific sessions, conferences, medical motion picture showings, and exhibits in the headquarters hotels

The chairman of the Board of Regents of the American College of Surgeons is Dr Irvin Abell, of Louisville, and the president is Dr Evarts A.

Graham, of St Louis. The president-elect is Dr W Edward Gallie, of Toronto, who will be inaugurated at the presidential meeting and convocation to be held the evening of November 3 in Symphony Hall, when several hundred initiates will be received into the fellowship of the College In charge of local arrangements for the Clinical Congress is a committee of Boston surgeons headed by Dr Leland S McKittrick, chairman, and Dr Richard H. Sweet, secretary

Headquarters of the American College of Surgeons, which has a fellowship of more than 13,000 surgeons, are at 40 East Erie Street in Chicago The associate directors are Dr Bowman C Crowell, who heads the Department of Clinical Research, and Dr Malcolm T MacEachern, chairman of the Administrative Board and in charge of hospital activities

PRIZE OFFERED

The American Neisserian Medical Society announces an annual prize of one hundred dollars, to be known as the P S Pelouze Award, to be presented to the person under thirty-five years of age who, in the opinion of the Committee of Awards, has made the outstanding contribution to the control of the gonococcal infections during the preceding year

Nominations for the award should be sent to the Secretary, 475 Commonwealth Avenue, Boston, not later than March 31 of each year The winner will be announced at the subsequent annual meeting of the Society

WOMAN'S AUXILIARY—ONONDAGA CO

The Onondaga County Medical Society and its Woman's Auxiliary are planning a luncheon on Tuesday, September 23, 1941, at the Hotel Syracuse, Syracuse, New York, as part of the program of the regular Fifth District Meeting of the Medical Society of the State of New York. An entertainment is being planned to follow the luncheon, and the doctors' wives as well as the doctors are cordially invited to attend this function.

Reservations Dr Sabine, Little Falls, or Virginia B Marty, 301 Summit Avenue, Syracuse, New York.

PHYSICAL DEFECTS IN THE GENESIS OF JUVENILE DELINQUENCY

FRITZ BLUMENTHAL, M D , Warwick, New York

PHYSICIANS are sometimes concerned with the physical aspect of disease and defect to the exclusion of adequate consideration of the influence that disease or physical defect may have on the personality and behavior of the patient. Medical work in a school for delinquents offers a challenging opportunity to investigate the correlation of physical abnormalities and behavior problems.

This paper is based upon studies of adolescent, delinquent boys who present, besides the problem of delinquency, a physical abnormality that appears to be related to the delinquency. The question is whether there is a mere coincidence of physical defect and social maladjustment or whether there is a causal relationship between the two.

The fact that one boy at State School whose hip ailment allowed him bicycle riding as his only sport activity repeatedly stole bicycles certainly points to obvious motivation. It still remains to be learned why this boy became delinquent, since it cannot be assumed that every individual suffering from such a disease presents inevitably the same behavior problem, nor can it be said that every boy who acutely desires a bicycle steals one. However, the mere statement of the above sequence gives us some understanding of the behavior of a boy deprived in his play life and seeking, a little desperately perhaps, to retain a grip on the only form of active play remaining for him.

When we consider physical defects in their effect upon adjustment and character, we must consider them as they appear to the patient. The deformity of a broken nose may mean little to a pugilist but may spell tragedy to a debutante. It seems to be appropriate to differentiate between those defects that are conspicuous and deforming and those that are easily concealed. However, it is psychology rather than visual conspicuousness which is important, and the two are not always parallel. For instance, deformity of the genitalia is easily concealed but is usually conspicuous in the mind of the patient.

There are physical conditions that are linked to the personality in ways much more

direct than the defects discussed here. Among the most important of this group are certain organic diseases of the nervous system and imbalance of the endocrine glands. These conditions may cause changes in personality and may influence behavior through nervous or hormonal effect rather than merely through the personality reaction to the defect.

Adenoidal condition in school children has been ascribed to be the cause for behavior problems. Whether there is a direct causal correlation or whether both the inattentive or instability of those children and the adenoidal condition are due to constitutional factors is still an open question.

Among the sensory organs, the eye is of outstanding significance. As far as psychic reactions are concerned, diseases of the eye are in many cases more obvious and visible than those of the ear. Diseases afflicting the auditory apparatus frequently cause gradual deterioration to which the patient becomes more easily adjusted than to the shock of an accident with sudden alterations. People with impaired hearing may show traits of mistrust, seclusion, and paranoid tendency, being asocial and withdrawn, but such changes come on in middle age and delinquencies rarely result. The reverse is frequently true in the eye cases. The following is an illustration.

Case Report

Case 1—James, a Negro boy aged 16, was admitted to State School after his second court appearance on the petition of his mother, who complained that he was ungovernable and beyond her control. The history of birth and early development was normal. He was reported by his mother to have been no problem in his earlier years. His conduct and work at school were considered good. His mother is separated from her husband, who is suffering from alcoholism. James was brought up by his mother since his ninth year. About that time the family moved from the South to New York.

At the age of 13 James fell on a piece of iron on the street and sustained an injury to his right eye and a deep laceration over the bridge of his nose. A year later, while boxing with a friend, he suffered an additional injury to the same eye. It was necessary for the eye to be enucleated. A prosthesis was substituted. James became extremely sensitive about the glass eye, feeling it

From the Neurological Institute, New York City and the New York State Training School for Boys, Warwick, New York.

was noticed and ridiculed by everyone. He resented being called names like "one-eye" or "half a face" by the children. His behavior was more babyish than before the accident. James became increasingly unmanageable in the home and school. He was disobedient and quarrelsome and had temper tantrums. On one occasion he struck his sister with a stick of wood. He frequently stayed out late at night. The school reports that he was a habitual truant and was considered a menace to the safety of the other children.

On admission to State School, James was found to be a tall, well-muscled boy of normal intelligence. In addition to the prosthesis in the right eye socket, he had a scar extending from the bridge of the nose to the lateral third of the right eyebrow, disfiguring his face. He complained of frequent pain in his testicles, a condition that he claimed to be a contributory cause for his outbursts. Physical examination of his genitalia revealed a tight foreskin with partial phimosis.

James was found to be a bright boy with some insight and mature manners, who discussed his difficulties freely. He was interested in music, dancing, dramatics, and sports.

At State School he readjusted himself progressively and with excellent results. The phimosis was treated by surgery, and he made no more complaints relative to his genitalia. In regard to his eye condition, he was given individual treatment by the clinic worker. The result is shown in the following statements of the boy given in an interview. He said that he had gotten used to the idea of having the other boys refer to him as "one-eye" or "half a face." He stated that he had come to the conclusion that the boys meant no harm, and he answered as if he were being called by his own name. He saw other boys with infirmities who accepted them as such, and he knew that nothing personal was meant. James said that he could see that his major difficulty in facing the boys at school was caused by his accident and, if he had felt then as he did now, he would have had no difficulty. His truancy he laid directly to the fact that he did not want to face the taunts of his classmates.

James was paroled after a six months' stay at the institution.

Chronologically speaking, there appears to be a relationship of physical defect and delinquency. The changes in the boy's behavior closely followed the accident and its physical manifestations, and the relation between his improved behavior and his adjustment to his handicap made it unlikely that this could be by mere coincidence.

However, the problem is not so simple as this might imply. James was brought up under unfavorable conditions by a mother who is very much concerned about her own

problems. She considers her marriage a mistake and hates her husband whom she seems to have presented as a bad example to James. Furthermore, James feels that his mother prefers his sister to him and that both sides together against him. Then, there is the move from the South to the North with a complete change of environment. Consequently, it could be assumed that this boy would have become delinquent even without a physical handicap, particularly at the age of puberty when marked changes in behavior occur even under normal conditions. One may come to the conclusion that James tried to put the blame for his delinquent behavior on a physical defect which only precipitated the boy's development toward delinquency. To some extent such a psychologic reaction can be traced in every case of physical defect and delinquency. It is not an uncommon experience that individuals try to excuse their failure in facing and handling difficult situations in life by their physical ailments or defects. Careful study in each case is required to evaluate the importance of the physical defect in comparison with other factors involved. The elimination of a physical handicap does not benefit some patients who only too soon find something else to explain or excuse their failures. This group of individuals resembles the patient who travels from hospital to hospital and "enjoys" dozens of operations on his "adhesions." However, where the physical handicap is remediable the attempt should be made to correct, eliminate, or control the condition if it is amenable to treatment.

Two aspects of this case deserve further mention. The loss of his eye occurred at the age of 13, at a time when the boy had a rather fixed conception of his own physical personality. Suddenly he became different not only to others but also to himself. This meant readjustment, even of his conception of himself. In the words of Lauretta Bender¹: "The pathologic process results in a discrepancy between the body structure and the body image constitutionally and socially acceptable to the patients."

Another important aspect of this problem has been elaborated by Alfred Adler,² who has stressed the feeling or complex of organ inferiority. An individual suffering from a physical defect and striving to hold his ground in environment with his will to power overcompensates his imperfections in his feelings and actions toward others.

Insecure and ridiculed by his mates, James

tried to protect himself, tried to gain status, by being tough and disobedient. On the other side, he liked to be babied but exploited the attention of others in order to tyrannize over them. It was thus the way of least resistance for James because of the rejection by his mother and her apparent identification with her husband, with whom she had been so unhappy.

The influence of the attitude of the parents can be decisive upon the child's response to his handicap. Parenthood throws a strain on human wisdom and adaptability under any circumstances. In the case of a handicapped child, any emotional imbalance in the attitude of the parents may cause reactions that are stronger and more vehement than in normal children. The child's helplessness may stimulate excessive care and protection. This in turn is an excessive burden on parents. Furthermore, overprotection can become the expression of feelings other than love. Parents may feel ashamed of their handicapped child. Such bitterness will be readily followed by feelings of guilt because they should not be ashamed. Consequently, the parents overdo in their care for the child, they become overprotective. This overprotection then may be called a "reverted rejection." And a child, rejected by the family, may easily react by seeking to obtain status outside his narrow environment—his home. Where the neighborhood shows a large population of delinquents, delinquency may become the channel for the child's satisfaction. A child thus rejected by the family may become delinquent when accepted by a group of lower standards. However, a child who is rejected by the wider circle of the outside world but well accepted by the family has a greater chance of escaping delinquency. Such a child, loved and understood by his parents, may develop to "the problem child" in a different way and often with a better prognosis.

The last outstanding important link in the chain of causes and sequences—the anticipated improvement of the boy's conduct and behavior immediately following the elimination of the physical handicap by medical procedure—is illustrated in the following case.

Case Report

Case 2—William was admitted to the institution at the age of 16 with a record of seven court appearances, including six for burglary and one for truancy.

The boy is reported to have been cross-eyed since childhood. The father had deserted the

home recently, and the mother is a religious fanatic who was married twice. The father used to punish William by putting him in a dark cellar. It is perhaps significant that the mother believes that the boy's eye trouble originated in this practice. William was operated on for strabismus twice at the age of 13, but without success. In connection with the eye operations, William tells of his father visiting him every night in the hospital. His mother did not come because she could not bear seeing him with his eyes bandaged, whereas William refers to the treatment by the nurses as being "babied," which he nevertheless found pleasant.

William is reported to have been poor in his school work in which he showed little interest. However, he had lost considerable time in his school program because of his long stays at the hospital. William did not participate in sports, because he "could not see well," but he sought his satisfaction in other fields—for instance, in drawing. The boy did not try to compete with the group of his own age but was inclined to associate with older boys. He used to walk out of school, but in summertime he had done hard work, such as cutting down trees and sawing wood. He said of himself "I worked more than I stole."

William is a rather tall, well-built boy, alert, but of limited intelligence. He had a marked strabismus, and the lid of the left eye blinked constantly. In interviews he appeared to be uninterested and cringy, was shy, and showed embarrassment about his condition of which he was self-conscious. He would look at the floor when speaking and try to draw away. He admitted his delinquencies without hesitation but was inclined to regard them lightly. While he accepted constructive criticism with an outward display of appreciation, he failed to profit by it in work. He liked to volunteer, but his good intentions, it was felt, were promoted by a selfish motive.

The boy's behavior changed grossly following a correctional operation for strabismus, which was successfully performed at State School. The correction of the physical handicap enabled the boy not only to overcome his shyness and embarrassment but also was followed by his feeling genuinely sorry over his past offenses and repeating frequently that one would never find him in any other institution. William was now able to meet people, he had become an excellent sport and was anxious to make a good impression in his assignment.

After his discharge from State School he made an excellent social adjustment, holding a position with a telegraph company in which he is doing exceedingly well. He has maintained this good adjustment for two years on parole.

In contrast to the first case, this second case deals with a correction of a defect that had existed throughout the early years of the

boy's development Physical imperfections may be congenital or may be acquired Their influence on personality can be of a wide range, depending greatly on the moment in which they appear and on the time the physical alteration takes to become evident to the patient and others Physical imperfections may prove to be the determining factor in a child's psychologic maldevelopment, or they may stimulate his reactions toward life as a precipitating, contributory factor In consequence, it cannot be expected in every case that with the elimination of a physical handicap that has existed for a number of years deviations in behavior will vanish and that the experiences of early childhood, which are important for the development of personality and character, can be completely wiped out Concerning the reactions of older age groups to physical defects, the sad experience of a war is doubtless providing too many examples of the problems of personality, as well as of economic adjustment, of persons suddenly crippled

Rejection is one of the possible reactions of the important people of the environment to a handicapped child Pity is another response, also dangerous to the child's development

Case Report

Case 8—Frank, a boy aged 14, of Italian descent, was admitted to State School after a number of court appearances, violation of probation, and commitment to another institution. He was presented to court first at the age of 11 for stealing a ride on a trolley car and then twice within a short period on petition of his father for running away from home, incorrigibility, and remaining out late at night His latest offense was stealing

The boy's behavior and conduct were considered satisfactory until the age of 8 The difficulties began following an accident Frank fell from a five-story building and sustained fractures of his legs and a fracture of the right side of his jaw Despite an operation at that time the jaw deformity remained, with a severe limitation of function as a consequence Frank became sensitive toward this malformation. He felt rejected by his father who held before him the older brother as a model child, even in respect to his appearance The mother seemed to have had a good deal of affection for Frank. She talked of his good looks as a child, contrasting it with his present undersized, puny appearance and malformation. Undoubtedly, she protected the boy from the father She expressed a great pity for her unfortunate child.

Frank was a small boy of borderline intelli-

gence There was an excess callus formation along the right ramus of the mandible which created a pronounced asymmetry of his face Ankylosis of the temporomandibular joint allowed only a limited forward-backward movement of the jaw This condition forced the boy to shovel food into his mouth with his fingers. The hearing of the right ear was impaired.

In an interview at State School Frank made the remark "I did not like the way I was and no one was helping me, so I decided to be bad" He had resented strongly that an agency that had him in its care before his commitment to State School had failed to keep what he considered its promise to fix his jaw The boy became cheerful when he was assured of another operation. In general, however, Frank showed a good deal of resentment against the world. He stated that he had never belonged to a club and had never joined a group of delinquents. He claimed that he had never stolen anything new or valuable He felt that the accident had impaired his mind somehow, and he attributed many of his difficulties to it Examination, however, failed to reveal evidence of organic damage to the central nervous system.

A second and third operation brought about an improvement in the boy's physical appearance and function of the jaw and was also followed by a change in the boy's attitude He began to show considerably more security In contrast to his forward and aggressive manners and lack of respect, he was polite and showed greater social interests

On parole Frank was apparently well adjusted for two years. At home he did not revert to the frequent running away that made him a problem before The absence of his older brother, who had married, and of his father, who was seriously ill in a hospital, probably contributed a good deal to the boy's adjustment in the home Their roles previously had been that of stern disciplinarians

However, Frank did not go to full-time school after his release He spent his time shining shoes in the neighborhood of his home and running errands on occasions Here he got under the influence of a group of delinquent boys whom he joined for "junking," a behavior that too frequently leads to forcible entry of buildings In view of the inadequate education this mentally retarded boy received after his release, it is not surprising to hear that Frank was finally involved in a case of burglary He was then committed to an institution for mentally defective delinquents

Being illustrative of the diverse factors contributing to a behavior problem, this case introduces borderline mental deficiency as a new constituent

The conflict with the father and older brother, as well as the high rate of delinquency in the neighborhood, may be noted

as aggravating factors, which have also been met in other cases

There is, however, one element worthy of mention in this case history, which, in a form both hidden and open, has exerted its influence. Pity was shown by the mother and, later, after his first unsuccessful operation, by his teachers. When Frank began to have some difficulties in school he acted up. One of the problems of the physician is that an illness or handicap that merits pity and, therefore, provokes it is likely to have as one of its results the development of the spoiled child, unable to stand on his own feet, resentful of authority, and almost doomed to frustration.

An appropriate answer to the question regarding the healthful attitude toward physical defect is given by Richard L. Jenkins: "I should say it contains, first, a recognition and acceptance of the fact of the defect and the degree of handicap it constitutes. I should say that the second element is a recognition of what is possible in spite of the defect, and here I mean what is possible without too extreme sacrifices or efforts. I should say that the third element is that the handicapped individual should shape his ambitions, should 'build his castle in Spain,' should lay his plans within the limits of what is possible with that handicap. Surprisingly enough, many individuals with extremely severe handicaps do succeed in preserving excellent mental health and apparently in finding a great deal of enjoyment of life despite many serious restrictions of their activities. A factor frequently of determining importance is whether the handicapped individual achieves social contacts which give him some sense of acceptance and social outlet."

In addition to this, a case quoted in the literature indicates how much depends on the attitude not only of the handicapped child but also upon training and education. Strict observance of a few simple pedagogic rules made it possible for a boy, born without arms, to train his feet to perform the work of hands. His father sought to require that the boy be given no pity and no unnecessary help.

In the time that has passed since this spectacular case, the problem of the handicapped child has become the subject of intensive investigation and of what is the imperative consequence of observation, help, treatment, and stimulation. Satisfactory results can be achieved if mental hygiene, psychology, and medicine, as well as social welfare, further develop their cooperation and undertake

more definitive integration in helping children with organic inferiorities in whatever way is indicated.

Summary

1 Physicians are sometimes concerned with the physical aspects of disease and defect to the exclusion of adequate consideration of the influence that disease or physical defect may have on the personality and behavior of the patient.

2 There are physical conditions that are linked to the personality in direct ways. Among the most important are certain organic diseases of the nervous system and imbalance of the endocrine glands.

3 There are physical conditions that have effects on personality and behavior through psychologic reactions to the defect.

4. It seems to be appropriate to differentiate between those defects that are conspicuous and deforming and those that are easily concealed. However, it is psychologic rather than visual conspicuousness which is important, and the two are not always parallel.

5 The adlerian theory of the inferiority complex and the theory of the discrepancy between physical structure and body image are believed to explain many problems of behavior in handicapped children.

6 A study of cases of delinquent boys with physical handicaps seems to indicate that delinquencies frequently have a close chronologic correlation both in origin and response to treatment. However, it cannot be expected in all cases that the psychologic features that have become established through a number of years vanish after corrective operations.

7 The influence of physical defect on personality depends greatly on the time in which it becomes evident to the patient and others. Physical imperfections may be congenital or may be acquired. They may prove to be the determining factor in a child's psychologic maldevelopment, or they may stimulate his reactions toward life as a precipitating factor.

8 Where the physical handicap is remediable the attempt should be made to correct, eliminate, or control the condition. This objective should not be followed with such blind enthusiasm as to result in the use of inappropriate treatment—for instance, surgical treatment for a condition of neurotic origin.

9 Environmental factors and their influence upon the behavior of the physically handicapped child must be understood and, where possible, controlled

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WESTCHESTER'S SIXTEEN POINTS ON NEONATAL MORTALITY

For many years medical authorities in the United States have been working energetically to reduce infant mortality. In the last 15 years infant mortality in this state has fallen 50 per cent

The major causes of death among the babies who live less than thirty days are being born prematurely, being injured at birth, and congenital malformation.

Approximately 5 per cent of all babies born are premature. In 1939 Westchester had 330 premature babies born out of a total of 7,295 births, 88 of the 330 were stillborn.

How do Westchester's sixteen hospitals take care of premature babies? A survey, made by the public health committee of the Medical Society of Westchester County and summarized in the county newspapers, reports the following

In the New Rochelle and White Plains hospitals and in the Yonkers Professional Hospital there are separate nurseries for premature babies. In eleven hospitals there are incubators, in five there are none. Eight of the hospitals reported a total of fifteen nurses with special training in the care of prematures. Five hospitals, the United in Port Chester, St Agnes in White Plains, the Peekskill, Mount Vernon, and Dobbs Ferry hospitals have an obstetrician in charge of the newborn, in the other eleven hospitals there is a pediatrician in charge.

Of Westchester's 1939 premature babies, 219 were born in hospitals and 23 were born at home. Ten of these later were taken to hospitals. Sixty-one of the prematures died in hospitals.

Of the hospitals, in 1939 Mount Vernon, with 842 births, rendered the largest maternity service, Dobbs Ferry, with 93, the smallest.

The United Hospital, Port Chester, rendered the second largest service with 731 births, St Agnes, White Plains, third, with 625, and the New Rochelle Hospital, fourth, with 616.

Following this survey and its other work over a period of years, the Public Health Committee of the Medical Society of Westchester, made, as of April 1, 1941, the following recommendations for reducing neonatal mortality in this county:

1 Prevention of premature birth. (a) Improve prenatal care of all prospective mothers. (b) Avoidance of physical and emotional strain in pregnancy. (c) Postpone induction of premature labor as long as possible.

2 Vitamin administration to prospective mothers. Vitamin D or multiple vitamins and calcium throughout pregnancy. Vitamin K before delivery.

3 Prenatal care of the breasts to provide for breast feeding.

4 Exercise care in obstetric analgesia to avoid asphyxia neonatorum, especially use of morphine in second stage of labor.

5 Avoid long second-stage labor in premature

deliveries. Episiotomy and low forceps for delay on perineum.

6 Care in handling newborn premature infants. Special attendant to receive and care for prematures at birth. Avoid chilling. Use heated bassinet. Oxygen and mechanical resuscitator when needed for asphyxia and transfer to incubator as soon as possible.

7 Newborn infants and nursery in charge of pediatrician in cooperation with obstetrician.

8 Obtain more autopsies on neonatal deaths especially of premature infants. Advise hospitals on suggested methods of approach to obtain permission for necropsies.

9 Special study by hospital staffs of cause of neonatal deaths and improve care for newborn and premature. Discussions by pediatricians, obstetricians, and pathologists.

10 Vitamin administration to all newborn infants, especially to the premature. Vitamin K on day of birth to all whose mothers have not had it. Vitamin D (not in oil) within two weeks of age, also vitamins C and B.

11 Establish a fund in each hospital to provide free breast milk for premature infants of needy families. Breast milk may be purchased from Mothers' Milk Bureau of the Children's Welfare Federation, 435 Ninth Avenue, New York City, telephone ME4dillon 3-3105.

12 Special training for nurses in care of premature infants. (a) Arrange for courses at obstetric hospital teaching centers. (b) One or more nurses with such special training in every newborn nursery in Westchester County. (c) All nurses trained in care of premature, so listed for private duty at nurses' registries.

13 Improved equipment for care of newborn and premature infants in all hospitals of Westchester County. (a) More modern type incubators. (b) Special nurseries for isolation of contagion. (c) Special nurseries for care of premature infants. (d) Provide at least one ideal unit for care of premature infants in the county.

14 Transport to hospital all premature infants under 4½ pounds born at home. (a) Provide portable ambulance incubators for transfer to hospital. (b) Provide hospital incubator care of such infants. (c) Require, by sanitary code, immediate report to health authorities of premature infants born at home.

15 Send copy of this report and summary of replies to questionnaires on care of newborn to each hospital superintendent and medical board of sixteen Westchester County hospitals. Hold a meeting for discussion with hospital superintendents.

16 Acquaint the public with the special needs for each hospital as determined from hospital superintendents, board of governors, and medical staffs.

THE TREATMENT OF REGIONAL ILEITIS

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SINCE the differentiation of regional ileitis from nonspecific granulomas of the intestine by Crohn and his associates in 1932,² a voluminous literature has been published. This has, in the main, corroborated the statements of these investigators while expanding some of their original concepts. The condition has been found in nearly all countries and types of peoples, and a review of case reports of previous years shows records of typical cases as early as 1806.¹ The original concept of a lesion limited to the terminal ileum has been expanded to include any part of the intestinal tract. Lesions limited to the right side of the colon are considered by some to be separate entities but this classification is not accepted by all.^{3,12}

Despite the general agreement on the clinicopathologic aspects, the treatment is still controversial. Up to the classic paper of Cutler¹⁶ radical surgery was considered to be the only treatment. The time and method were the only points about which opinions differed. Since Cutler's article, there has been a swing toward the palliative type of surgery. The subject, however, is far from settled, and this paper was undertaken with the idea of crystallizing the opinions of the medical profession in general and comparing them with the procedures used in 23 proved cases in Broome County, New York (Table 1).

An abstract of the subject of regional ileitis is also being presented prior to a discussion of the treatment of this condition so that the basis for the conclusions drawn will be clear.

Regional ileitis is a nonspecific, granulomatous condition of localized segments of the bowel, usually involving the terminal ileum. It is characterized by lymphostasis or blocking due to an unknown factor, possibly a virus. Attempts have been made to link this with tuberculosis, bacillary dysentery, a filtrable virus, and to various forms of streptococci without success.^{2,5,10,13}

The condition usually involves one segment. More than one portion may be affected, with normal intestine known as a "skip" area between. The areas involved may be in different parts of the ileum, in the ileum and jejunum, or in the ileum and colon. The skip areas may vary from a few inches to several feet.

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Microscopically, the "pathological picture consists of a generalized inflammatory reaction with increased vascularity and swelling of the involved tissue with edema and cellular infiltration. The cellular infiltration is largely lymphocytic with plasma cells and eosinophils in moderate numbers. Eventually, the acute reaction is followed by fibrosis and invasion by giant cells, and a chronic process occurs as a part of the attempted healing process. The reactive areas now appear as small tubercles, similar, histologically, to those present in tuberculosis. No caseation occurs and no tubercle bacilli are found. As fibrosis increases, constriction of the bowel results and the wall of the intestine becomes a stiff tube with variable areas of great constriction which may almost totally obstruct the bowel."¹⁶ In the small bowel, as constriction progresses and as the blood supply and lymphatic drainage are interfered with, ulceration of the mucosa results. This ulceration occurs in the mesenteric side of the gut.

The gross appearance of the lesion is characteristic. The involved area is thickened and shows signs of a low-grade inflammatory process. The serosa is red and roughened with a markedly thickened mesentery containing enlarged but discrete lymph nodes. The demarcation between the normal and involved areas is abrupt. When the condition has progressed sufficiently there is ulceration of the mucosa on the mesenteric side of the gut. The marked fibrous reaction results in a thickened "hose-like" bowel, which may become almost completely obstructed in the late stages. The ulcerative process is usually slow, causing the formation of abscesses that are walled off by the surrounding bowel. Perforations into surrounding bowel causing enteric fistulas are frequent. Abscesses also may drain externally, forming abdominal, inguinal, lumbar, perianal and rectal, or rectovaginal fistulas. Occasionally, ulcers perforate directly into the peritoneal cavity, causing peritonitis. Because of the inflammatory reaction or abscess formation, a mass may be felt, usually in the right lower part of the abdomen. The condition is characterized clinically by remissions and exacerbations. When first noted, the affected segment may vary from a slight thickening to a condition impossible to differentiate from carcinoma.

TABLE 1—REGIONAL ILEITIS BROOME COUNTY, NEW YORK

Case	Age	Sex	Year	Acute or Chronic	Prior Appendectomy	Procedure	Abdominal Fistula	Recurrence	Clinical Result
1	49	M	37	Chronic	No	Primary resection	No	No	Cured
2	44	F	36	Chronic	Yes	Stage resection	No	No	Cured
3	19	F	36	Chronic	No	Primary resection	No	No	Died
4	22	M	37	Chronic	Yes	Stage resection, multiple operation	No	Yes	Surgical failure
5	17	M	36	Acute	No	Primary resection	No	No	Died
6	33	M	36	Acute	No	Ileostomy and drainage, 2-stage resection	No	No	Cured
7	26	M	33	Chronic	Yes	Primary resection	Yes	Yes	Improved
8	47	F	36	Chronic	Yes	Mikulicz procedure	No	No	Cured
9	34	M	35	Chronic	Yes	Primary resection	Yes	Yes	Cured
10	22	M	30	Chronic with acute obstruction	Yes	Primary resection	No	Yes	Improved
11	57	M	39	Chronic	No	Primary resection	No	No	Died
12	21	F	39	Acute	No	Primary resection	No	No	Cured
13	27	F	38	Acute	No	Primary resection	No	No	Cured
14	12	M	39	Acute	No	Primary resection	No	No	Cured
15	38	F	37	Acute	No	Drainage	No	No	Cured
16	14	F	36	Acute	No	Appendectomy	No	No	Cured
17	17	M	35	Acute	No	Appendectomy	No	No	Cured
18	4	M	38	Acute	No	Appendectomy	No	No	Cured
19	55	F	37	Acute	No	Appendectomy	No	No	Cured
20	19	F	39	Acute	No	Appendectomy	No	No	Cured
21	60	M	39	Acute	No	Appendectomy	No	No	Cured
22	15	M	40	Acute	Yes	Freeing adhesions bleeding ulcer	No	No	Cured
23	48	M	40	Chronic	No	Appendectomy	No	No	Cured
					No	Medical treatment	No	No	Improved

Clinically, the condition has been divided into four stages.² For practical purposes it is sufficient to know that the condition first causes signs of inflammation and irritation of the bowel. This is the stage at which acute appendicitis is diagnosed and the appendix removed. Diarrhea, if present, should suggest the possibility of ileitis prior to operation. Later, the condition of obstruction and abscess formation with the appearance of fistulas occurs. Any one or all of these signs may be present. The early stages are considered to show low-grade obstruction, whereas the late stages show the more complete obstruction and the presence of fistulas or abscess formation.

Treatment

The treatment of regional ileitis is controversial because the etiology is obscure. Because of this unsettled condition, the aim of treatment must necessarily be empirical. There are two schools of thought based upon differing opinions as to the ultimate results.

The advocates of medical treatment are led by Dr. Elliott Cutler, professor of surgery at Harvard University. Dr. Cutler bases his opinion on a survey of the literature and analysis of 11 operative cases.¹⁸ Nine of these showed active recurrence. The complete cures reported by those using radical surgery are questioned by him. In the hands of his colleagues and himself, recurrence is a frequent happening. He feels that spontaneous recovery may occur apparently at any time and that surgery will change the outcome very little. He quotes 2 patients, with appendectomies

only and proved ileitis, who are active and in good condition, one after twenty-seven years. He advises against surgery unless such action is forced by obstruction or perforation. When necessary, surgery should be directed to the correction of the acute condition only. Resections are not indicated in his opinion. He suggests that permanent ileostomy may be the procedure of choice.

Crohn, who originally described ileitis, feels that medical treatment is dangerous. He states that ileitis is a cicatrizing disease that, by its very nature, results in distortion of the intestine. While patients with acute ileitis may recover completely, there is no way of knowing whether this will occur or whether it will progress to the chronic type necessitating radical surgery. He states that in proved cases seen at autopsy there has never been a complete cure pathologically. When the disease is diagnosable by x-ray, he believes that the defect will always need surgical resection. He quotes a case that was treated medically despite definite signs of ileitis and that subsequently had to have a radical resection.¹²

Before going into details as to treatment, it is necessary to emphasize that nearly all acute cases and a great many of the chronic ones are not diagnosed prior to laparotomy. In our series, only 2 of the 22 surgical cases were correctly diagnosed preoperatively. In some others, fistula formation pointed to the correct diagnosis but only after appendectomy had been done. It is useless to discuss treatment unless the diagnosis is sure. This is emphasized by the fact that 2 additional cases,

clinically and roentgenologically definite (having the "string" sign), were found to be due to appendiceal pathology and not ileitis. Cutler mentions a case that was treated for two years as ileitis and was then found to be due to malignancy.¹⁶ Therefore, we must divide cases into those diagnosed before operation and those only determined after laparotomy. This of itself determines that the bulk of the cases will be first seen by the surgeon, and the type of treatment followed will be his responsibility. In the larger clinics the correct diagnosis will be more often correctly made but, as stated above, these will be the advanced types showing definite deformity of the bowel by x-ray.

Medical treatment consists of general supportive measures to build up the patient and the use of a simple, bland diet, exactly like that used in tuberculosis of the intestine. Cutler suggests liquid petrolatum when signs of low-grade obstruction are present. A high-protein, high-vitamin, low-residue diet is indicated. Blood transfusions, sunlight, bed rest, and symptomatic medications are to be used. The use of nonspecific therapy has not been of much value. X-ray therapy is suggested by Cutler in cases that are resistant to other types of treatment.

Surgical treatment may be divided into treatment of the various stages of the disease. The acute ileitis, showing signs suggestive of an acute abdomen without obstruction, perforation, or abscess formation, is best left alone according to all writers. These are inadvertently found at operation for some abdominal condition, usually an acute appendix. There is free fluid in the abdomen and signs of an active lesion. The terminal ileum is thickened, the serosa may be covered with tubercle-like formations, and there may be enlarged discrete lymph glands. The appendix may or may not show signs of an inflammatory process. The removal of the appendix is a debated point. Crohn,⁷ Crile,²⁸ and others feel that the appendix should be left because of the danger of fistula formation. It is a common occurrence and many cases are cited in nearly all series. Woolsey²⁴ and others feel that routine appendectomy is indicated.

The use of radical resection has been advocated since regional ileitis has been known. This has been used for cases that are diagnosed prior to operation or cases in which the lesion and condition of the patient suggested the procedure. Radical surgery may be performed in one or more stages. Colp and Ginzburg recently reported 22 cases in which ileotrans-

versecolostomy, with exclusion only, was done with no mortality. They believe that removal of the diseased segment is not necessary except in cases with abdominal fistulas. Fistulas between segments of bowel have healed spontaneously after this procedure. Other writers are not so optimistic. Marshall¹³ and Crile²⁶ feel that resection of the affected segment is necessary. They believe that this should include a good margin of normal bowel above and below, including the lymphatic supply. Crohn suggests that the adjacent cecum and, possibly, ascending colon be removed when the terminal ileum is involved. Most of the writers use the side-to-side anastomosis with ileotransversecolostomy following the resection. All advise resection of the ileum with exclusion when short-circuiting procedures are used.

Cases having abscess formation should be treated conservatively. Marshall reports 1 patient who died following drainage. Usually the condition will subside after drainage, however, and radical surgery may be performed at a later date if desired. The treatment of patients showing signs of acute peritonitis carries a high mortality. Querna¹⁴ and Marshall¹³ each report a case in which ileocolostomy was performed with a fatal outcome. The general opinion is that the patient should be treated for the peritonitis primarily and that the ileitis should be left for a later date. Kross¹⁷ reports a case in which ileostomy only was performed with apparent cure.

The mortality in radical surgery is quite high, 15 per cent according to Crohn. He stresses that when palliative procedures with a lower mortality are used only 50 per cent are successful. The rest require further surgery with a correspondingly increased death rate. The high mortality in resections is attributed by him to the fact that cases are seen after extensive involvement has occurred due either to medical treatment or to failure to diagnose the condition. Clark and Dixon⁹ report 44 cases of which 14 had ileocolostomy only, with 4 deaths, 14 had a one-stage resection, with 1 death, 15 had a two-stage resection, with 2 deaths, and 1 had a simple exploration with recovery. Blackburn and his associates²⁰ report 16 primary resections and 4 two-stage resections without mortality. Two other cases with ileocolostomy only had equally good results. Russell²⁵ reports 27 cases of which 13 had resection with ileotransversecolostomy, 3 had a Mikulicz procedure, and 11 had appendectomy only, with 3 deaths. These varying reports are paralleled by other large series in the literature.

Crohn states that there is a 90 per cent return to health when radical resection is done. This is a positive statement corroborated by the writers quoted above. The discrepancy between this and Cutler's statement of no cures lies in the method of interpreting the patient's clinical status. Crohn relies on the fact that the patient is clinically well and is able to carry on his occupation. Cutler makes use of the x-ray interpretation by the "motility" series and classifies as cured only the case that has absolutely no intestinal symptoms and a normal gastrointestinal tract as evidenced by careful examination.

Crohn¹² states that the recurrence rate in his series was 77 per cent. This is attributed to too conservative resections. Marshall, Blackburn, and many others feel the same way. They state that many cases classified as recurrences are really progressions of the disease in a segment that has been left. In cases with skip areas, the diseased proximal segment may be missed at the first operation. Blackburn reports no recurrence in 22 cases. Marshall¹³ reports 2 recurrences in 29 cases.

In the treatment of regional ileitis the consensus is that, except in acute conditions, surgery is indicated. The type of surgery to be used will depend upon the pathology found at operation. Fistula formation always requires radical resection before cure is to be expected. Ileocolostomy with exclusion carries a lower mortality and apparently carries as good chance for complete recovery. Primary radical resection has given better clinical results than two-stage procedures reported in the literature. The type of procedure, however, will vary with the dexterity of the surgeon, and the results quoted above closely resemble each other no matter what type of surgery is used.

Analysis of the 23 cases in Table 1 shows that 22 had surgical treatment.

There were 13 acute cases. None of these were diagnosed preoperatively. One case (21) had had a previous appendectomy. He showed signs of acute obstruction and was operated on with this diagnosis. At operation, the terminal 2 feet of the ileum showed acute inflammatory changes. Treatment was restricted to exploration. Another case (15) showed signs of peritonitis but without any definite focus. Treatment was restricted to drainage. Six cases were operated on with a diagnosis of acute appendicitis and, although the appendix showed no signs of serious pathology grossly and microscopically, it was removed. None of these have developed a fecal fistula to date. Case 18, which showed ex-

treme thickening of the terminal 18 inches of the ileum in a 4-year-old child, has a good possibility of further trouble since only two years have elapsed. One case (6) had abscess formation. This was drained and an ileostomy performed. Later, he had a radical resection. The 4 remaining acute cases had primary resections with 1 death. This occurred in the operating room in a case with acute peritonitis complicating the ileitis. This was the only fatality in the whole acute group (77 per cent). The surviving cases are clinically cured.

Analysis of the treatment of the acute cases indicates that results in this type will be superior to that in the chronic case because the pathology is less advanced. Simple appendectomy, drainage, or exploration resulted in cure in 9 cases without a death. Primary resection in the remaining 4 cases resulted in cure in the surviving 3, but 1 died, giving a mortality of 25 per cent. This suggests that primary short-circuiting would be preferable.

Nine cases (1, 2, 3, 4, 7, 8, 9, 10, and 11) had had symptoms for some time and are classified as chronic. Only 2 cases were diagnosed before the first exploratory. One of these cases (1) was admitted with signs of acute obstruction, which subsided by use of Wangenstein drainage. At operation, despite negative x-ray findings, a small area of thickened bowel, which almost completely obstructed the ileum about 2 feet above the ileocecal valve, was found.

Six of the 9 cases had had previous appendectomies (66 per cent). Of these, 2 had fistula formation beginning two months after apparent normal healing (33 1/3 per cent). The record of 1 case (7) was not available, having been operated on elsewhere. The other case (9) was operated on for gangrenous appendicitis, but the microscopic report shows perianal appendicitis only. Another case (2) had drainage of an appendiceal abscess and an appendectomy which, on microscopic examination, showed a chronic inflammatory process only. Of the remaining 3 cases, 8 and 10 showed a mild catarrhal appendicitis at operation grossly. The last case (4) showed a definite involvement of the terminal ileum, which was considered to be tuberculous. Appendectomy was done as a routine procedure. Analysis of the 6 cases is enlightening in that not one of these, despite the operative diagnoses, showed signs of acute appendicitis microscopically. While there is no reason to doubt the possibility of a coincident appendicitis and ileitis, its frequency seems question-

able In the case with abscess formation it seems clear that the abscess was not of appendiceal origin

A comparison of these 6 with the 6 acute cases with appendectomy only reveals a great similarity as to the microscopic findings The greater severity of the gross findings in those requiring further surgery is important in that it suggests the key to treatment Had the terminal ileum been examined, it is possible that an advanced pathologic process might have been found unlike that in the acute cases The 2 cases that showed fistulas on admission (Cases 7 and 9) had had a postoperative diagnosis of gangrenous appendicitis In both, healing was normal and fistula formation did not occur until two months later The appearance of fistula formation after appendicitis as a sign of regional ileitis has been emphasized in the literature I feel that the appearance of fistulas in cases presenting evident gross and severe pathology in the appendiceal region is significant It suggests, as borne out by Table 1 and literature, that appendectomy in early mild cases is safe and that cure is to be expected

Analysis of these 6 cases from the point of view of treatment at the time of the appendectomy is of no value in 5 cases, since the condition was unrecognized However, it emphasizes the necessity for examination of the terminal ileum whenever possible

Case 4 is extremely valuable as it embraces the very points about which there is controversy In part, it supports both sides We have here a definite pathologic condition of the terminal ileum which was recognized at the time of operation Being considered of tuberculous origin, the patient, even though the diagnosis was incorrect, was treated according to the accepted ileitis regimen, with sunlight, fresh air, vitamins, etc The question over removal of the appendix was unimportant, since no fistula or difficulty followed which could be attributed to this Despite this treatment that follows Cutler's ideas, the patient developed extensive involvement of the small bowel and most of the large bowel over a period of three years It is paralleled by the case reported by Crohn¹² On second admission, he showed signs of acute obstruction plus extreme debilitation The condition was recognized prior to operation but the process was so extensive that an ileosigmoidostomy was the only procedure feasible The patient improved somewhat but still had complaints and was physically unable to work Resection of the affected bowel was then performed

His condition remained about the same, but gradually over a period of a year he became much worse He was seen by Crohn who felt that he would improve and advised against further surgery He could find no signs of active ileitis at the time Despite this optimistic report, the patient became much worse and was bedridden for a great deal of the time Mentally, he was difficult to handle Following Cutler's suggestion¹⁴ a permanent ileostomy was done He became marasmic because of the loss of intestinal contents and was completely bedridden An ileocolostomy was done with some improvement The patient was discharged from the hospital in as bad, if not worse, condition than when he entered Removal of a lymph gland from the mesentery of the ileum at the time of the last operation showed signs of active ileitis A month later, the patient returned, having been suffering from pains in the operative area He was definitely worse and showed a marked elevation of temperature The wound broke open forming a fecal fistula He improved for a few days, and then over a two months' period he failed and died This fatality is not included in the surgical deaths Analysis of this case strongly urges that surgical intervention be made when the condition is of a chronic nature—that is, grossly demonstrable In this the statements of Crohn,¹² Marshall,¹³ and others are corroborated On the other hand, the statement of Cutler that ileitis cannot be eradicated by radical surgery is suggested by the finding of acute ileitis two years after a radical operation and after the patient had been declared clinically cured A valid criticism is that he had too much surgery In our opinion, however, it would be true to say that he had surgery too late

Case 1 has been mentioned previously Primary resection of the ileum with side-to-side anastomosis resulted in a clinical cure This is contrary to what Dr Crohn prophesied when the case report was submitted to him He felt that the terminal ileum and cecum should also have been removed Mixer,¹¹ however, feels that it is not necessary to resect the terminal ileum and cecum at the same time unless there is actual involvement Case 14 was similarly treated with clinical cure

Case 3 gave a definite history suggesting regional ileitis Following primary resection with side-to-side anastomosis, impairment of circulation of the bowel in the area of the anastomosis occurred A second operation for obstruction and further resection resulted fatally This is a technical outcome that may

TABLE 2—REGIONAL ILEITIS, BROOME COUNTY, NEW YORK

	No	Deaths	Percentage
Women	9	1	11
Men	14	2	14
Total	23	3	13 7
Acute	13	1	7 9
Chronic	10	2	20
Surgical	9	2	23
Medical	1	0	0
Procedure in 22 cases			
Appendectomies only	6	0	27
Appendectomy with later exploration	1	0	4 5
Appendectomy prior to resection	6	0	27
Total	13	0	59 of surgical cases
Drainage	1	0	4 5
Drainage with later resection	1	0	4 5
Total	2	0	9
Freeing of adhesions	1	0	4 5
Resections			
Primary	10	3	30
Mikulicz	1	0	0
Stage resection	3	0	0
Total	14	3	21 4
Medical treatment	1	0	0
Results	No	Percentage	
Clinically cured (surgically)	16	72	
Improved			
Surgical	2	9	
Medical	1	100	
Recurrence	4	18 2	
Surgical failure	1	4 5	
Number of surgeons 15			

occur in any intestinal procedure and is one of the reasons for a preliminary short-circuiting as suggested by Colp and Ginzburg.¹⁹

Case 11 was operated on with a diagnosis of malignancy, and primary resection with side-to-side anastomosis was performed. Death occurred during convalescence from embolism. Embolism is a too common occurrence in bowel resections to warrant comment. Again preliminary short-circuiting is suggested as safer.

A résumé of the 22 surgical cases reveals that there were 10 primary resections. Three died, giving a mortality of 30 per cent. Two who required further resections are improved. Five are clinically cured but 1 of these had to have more surgery. Thus, complete cure with one operation occurred in 4 only—40 per cent. There were four multiple stage operations—one, a Mikulicz procedure, with no deaths.

There were 4 cases of recurrences. Three occurred following primary resection, and 1 after a preliminary ileosigmoidostomy with later resection. Two of the 4, however, were admitted with abdominal fistulas. All 4 had had a previous appendectomy. Since we have no record of the condition of the ileum at the original operation except in 1 case (Case 4 which has been described more completely), the only inference possible is that examination

of the ileum might have demonstrated an advanced condition of ileitis.

Case 23 is the only case treated medically in our series and is 1 of the few diagnosed without operation. He has been treated for abdominal distress for many years, the diagnosis ranging from appendicitis to gallbladder disease to ulcer. He has had no acute obstructive symptoms, nor has he had episodes of fever, nausea, and vomiting suggesting acute appendicitis. He has had no diarrhea, although his bowels move regularly twice a day without cathartic. At the present time he is in excellent physical condition and has no complaints so long as he stays on his diet. It must be emphasized that at no time has he been seriously ill. He has been advised to have an ileocolostomy by a member of the Mount Sinai group. In our opinion, considering his age and the low-grade activity present, conservation seems indicated. He will, of course, receive periodic checkups.

Summary

A survey of the literature and a critical analysis of 23 cases of regional ileitis from Broome County, New York (Table 2), lead to the following conclusions:

- 1 The main obstacle to a rational treatment of ileitis in the smaller communities lies in the difficulty of diagnosing the condition prior to operation.

- 2 Cases diagnosed without operation must of necessity have a condition of advanced pathology causing distortion of the bowel as demonstrated by x-ray examination. In these cases, medical treatment is indicated in those patients whose symptoms are mild and not disabling economically, and in whom the condition is quiescent or clinical improvement is present. This would seem to be indicated more often in persons of middle age, since its diagnosis at that time would, in itself, tend to indicate a long slow course. Medical treatment is also indicated in cases in which the condition of the patient or the extent of the involvement of the bowel forbids surgery.

- 3 Surgical treatment is indicated in medical cases that show progression as evidenced by physical debility or by signs of obstruction, abscess, or fistula formation.

- 4 Surgical treatment in acute mild cases found inadvertently at operation without evident obstruction or abscess formation should be restricted to simple exploration. Appendectomy seems safe if desired.

- 5 Acute surgical cases found inadvertently at operation but presenting signs of severe infection, abscess formation, or obstruc-

tion should be treated for the presenting pathology only. Further surgery may be done when the acute process has subsided. When the microscopic report on an apparent gangrenous or ruptured appendix shows chronic inflammation only, ileitis is to be considered and a careful follow-up should be done.

6 In advanced cases, primary resection gives the best clinical results, but the mortality is prohibitive.

7 Resection in stages gives a much lower mortality and is preferable for the average surgeon. It is especially indicated in cases with fistula formation. Either a preliminary ileotransversecolostomy with section of the ileum or the Mikulicz procedure as advocated by Marshall¹² may be used.

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LORD HORDER ON AIR-RAID SHELTERS

In an address to the Royal Society of Arts on "The Modern Troglodyte," Lord Horder, who was appointed by the government to inspect and report on air-raid shelters, said that we heard a lot about foreigners crowding into the shelters, but these folk were under British protection and we must give them security and care for them. That was where we differed from the Nazis. This great and cataclysmal upheaval had brought into the shelters for inspection the slum conditions of which we said we were ashamed. For many of these citizens what the authorities had now been able to establish represented better and happier conditions than they had before night bombing began. This was an indictment of what had been called "our social system." These folk now enjoyed a communal life, though of a rudimentary sort, which bred a spirit of good temper and dignity, it enabled them to adapt themselves to the nation's exigency and spirit. That it should have needed a war and life under ground for half of the twenty-four hours to achieve a result which was bringing joy to the hearts of social workers was a humiliating thought. To get among the ordinary folk and give them sane, simple, and homely advice was the dream of doctors with any vision for one hundred years. Here was field work of the best kind in preventive medicine to keep the fit fit and to make the near fit fit. He believed that from these severe trials would emerge a group of people better fitted to arrange the pattern of their lives in the better days that all were determined to have in the future.—*J.A.M.A. London letter*

DISQUIETING

There is a "natural reluctance" just now to take issue with the Chief Executive, remarks the *New York Medical Week*, but at the same time the physicians of America cannot close their eyes to a continuing tendency on Mr. Roosevelt's part to entrust medical tasks of the first magnitude to laymen.

"One would imagine that the coordination of 'all health, medical welfare, nutrition and other related fields of activity affecting the national defense' would call for a thoroughly trained physician with broad experience in the fields involved. That there are many such men in private practice and public health work in this country no one can for a moment doubt. Instead Mr. Roosevelt has chosen to entrust this essentially medical task to Federal Security Administrator Paul V. McNutt.

"Among the medical questions over which Mr. McNutt has been given jurisdiction are the medical aspects of the draft, including the rehabilitation of rejected men, civilian and military medical supplies, sanitation, health and medical service in defense industrial sections and mobilization areas, transfer of funds for health and welfare purposes, and correlation of all governmental medical agencies.

"This new assignment gives Mr. McNutt virtually complete control over medical practice as it relates to defense—and what cannot be included in this category? It is disturbing to see these enormous powers lodged in one of the President's political henchmen rather than in a qualified medical man," concludes the *New York Medical Week*.

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Acute	13	1	7.9
Chronic	10	2	20
Surgical	9	2	22
Medical	1	0	0
Procedure in 23 cases			
Appendectomies only	6	0	27
Appendectomy with later exploration	1	0	4.5
Appendectomy prior to resection	6	0	27
Total	13	0	59 of surgical cases
Drainage	1	0	4.5
Drainage with later resection	1	0	4.5
Total	2	0	9
Freeing of adhesions	1	0	4.5
Resections			
Primary	10	3	30
Mikulicz	1	0	0
Stage resection	3	0	0
Total	14	3	21.4
Medical treatment	1	0	0
Results	No	Percentage	
Clinically cured (surgically)	16	72	
Improved			
Surgical	2	9	
Medical	1	100	
Recurrence	4	18.2	
Surgical failure	1	4.5	
Number of surgeons			15

occur in any intestinal procedure and is one of the reasons for a preliminary short-circuiting as suggested by Colp and Ginzburg.¹⁹

Case 11 was operated on with a diagnosis of malignancy, and primary resection with side-to-side anastomosis was performed. Death occurred during convalescence from embolism. Embolism is a too common occurrence in bowel resections to warrant comment. Again preliminary short-circuiting is suggested as safer.

A résumé of the 22 surgical cases reveals that there were 10 primary resections. Three died, giving a mortality of 30 per cent. Two who required further resections are improved. Five are clinically cured but 1 of these had to have more surgery. Thus, complete cure with one operation occurred in 4 only—40 per cent. There were four multiple stage operations—one, a Mikulicz procedure, with no deaths.

There were 4 cases of recurrences. Three occurred following primary resection, and 1 after a preliminary ileosigmoidostomy with later resection. Two of the 4, however, were admitted with abdominal fistulas. All 4 had had a previous appendectomy. Since we have no record of the condition of the ileum at the original operation except in 1 case (Case 4 which has been described more completely), the only inference possible is that examination

of the ileum might have demonstrated an advanced condition of ileitis.

Case 23 is the only case treated medically in our series and is 1 of the few diagnosed without operation. He has been treated for abdominal distress for many years, the diagnosis ranging from appendicitis to gallbladder disease to ulcer. He has had no acute obstructive symptoms, nor has he had episodes of fever, nausea, and vomiting suggesting acute appendicitis. He has had no diarrhea, although his bowels move regularly twice a day without cathartic. At the present time he is in excellent physical condition and has no complaints so long as he stays on his diet. It must be emphasized that at no time has he been seriously ill. He has been advised to have an ileocolostomy by a member of the Mount Sinai group. In our opinion, considering his age and the low-grade activity present, conservation seems indicated. He will, of course, receive periodic checkups.

Summary

A survey of the literature and a critical analysis of 23 cases of regional ileitis from Broome County, New York (Table 2), lead to the following conclusions:

- 1 The main obstacle to a rational treatment of ileitis in the smaller communities lies in the difficulty of diagnosing the condition prior to operation.

- 2 Cases diagnosed without operation must of necessity have a condition of advanced pathology causing distortion of the bowel as demonstrated by x-ray examination. In these cases, medical treatment is indicated in those patients whose symptoms are mild and not disabling economically, and in whom the condition is quiescent or clinical improvement is present. This would seem to be indicated more often in persons of middle age, since its diagnosis at that time would, in itself, tend to indicate a long slow course. Medical treatment is also indicated in cases in which the condition of the patient or the extent of the involvement of the bowel forbids surgery.

- 3 Surgical treatment is indicated in medical cases that show progression as evidenced by physical debility or by signs of obstruction, abscess, or fistula formation.

- 4 Surgical treatment in acute mild cases found inadvertently at operation without evident obstruction or abscess formation should be restricted to simple exploration. Appendectomy seems safe if desired.

- 5 Acute surgical cases found inadvertently at operation but presenting signs of severe infection, abscess formation, or obstruct-

tion should be treated for the presenting pathology only. Further surgery may be done when the acute process has subsided. When the microscopic report on an apparent gangrenous or ruptured appendix shows chronic inflammation only, ileitis is to be considered and a careful follow-up should be done.

6 In advanced cases, primary resection gives the best clinical results, but the mortality is prohibitive.

7 Resection in stages gives a much lower mortality and is preferable for the average surgeon. It is especially indicated in cases with fistula formation. Either a preliminary ileotransversocolostomy with section of the ileum or the Mikulicz procedure as advocated by Marshall¹³ may be used.

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LORD HORDER ON AIR-RAID SHELTERS

In an address to the Royal Society of Arts on "The Modern Troglodyte," Lord Horder, who was appointed by the government to inspect and report on air-raid shelters, said that we heard a lot about foreigners crowding into the shelters, but these folk were under British protection and we must give them security and care for them. That was where we differed from the Nazis. This great and cataclysmal upheaval had brought into the shelters for inspection the slum conditions of which we said we were ashamed. For many of these citizens what the authorities had now been able to establish represented better and happier conditions than they had before night bombing began. This was an indictment of what had been called "our social system." These folk now enjoyed a communal life, though of a rudimentary sort, which bred a spirit of good temper and dignity, it enabled them to adapt themselves to the nation's exigency and spirit. That it should have needed a war and life under ground for half of the twenty-four hours to achieve a result which was bringing joy to the hearts of social workers was a humiliating thought. To get among the ordinary folk and give them sane, simple, and homely advice was the dream of doctors with any vision for one hundred years. Here was field work of the best kind in preventive medicine to keep the fit fit and to make the near fit fit. He believed that from these severe trials would emerge a group of people better fitted to arrange the pattern of their lives in the better days that all were determined to have in the future.—*J.A.M.A. London letter*

DISQUIETING

There is a "natural reluctance" just now to take issue with the Chief Executive, remarks the *New York Medical Week*, but at the same time the physicians of America cannot close their eyes to a continuing tendency on Mr. Roosevelt's part to entrust medical tasks of the first magnitude to laymen.

"One would imagine that the coordination of 'all health, medical welfare, nutrition and other related fields of activity affecting the national defense' would call for a thoroughly trained physician with broad experience in the fields involved. That there are many such men in private practice and public health work in this country no one can for a moment doubt. Instead Mr. Roosevelt has chosen to entrust this essentially medical task to Federal Security Administrator Paul V. McNutt.

"Among the medical questions over which Mr. McNutt has been given jurisdiction are the medical aspects of the draft, including the rehabilitation of rejected men, civilian and military-medical supplies, sanitation, health and medical service in defense industrial sections and mobilization areas, transfer of funds for health and welfare purposes, and correlation of all governmental medical agencies.

"This new assignment gives Mr. McNutt virtually complete control over medical practice as it relates to defense—and what cannot be included in this category? It is disturbing to see these enormous powers lodged in one of the President's political henchmen rather than in a qualified medical man," concludes the *New York Medical Week*.

STEVENS-JOHNSON DISEASE WITH COMPLETE VISUAL RECOVERY

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IN DEALING with a disease that has resulted invariably in ocular impairment varying from reduced vision to complete loss of the eyes, any information that may be of value in changing these statistics should be welcome. The importance of the care of the eyes in this disease has been mentioned by Wheeler,¹ but it can bear repetition, for in this recognition lies the first step in the eradication of the sequelae which as a rule have had their forerunners, purulent conjunctivitis and corneal ulcerations, develop before appropriate measures have been introduced.

Von Hebra² in 1866 gave the name of erythema multiforme exudativum to a group of polymorphous erythemas which he considered due to a systemic invasion of some unknown factor. He stated that mucous membranes may be involved but did not stress the occurrence of conjunctivitis of a serious type. This form was recognized by Mracek³ and Crocker,⁴ the latter noting that the conjunctiva may be the first part affected.

If one excludes the streptococcic pseudomembranous conjunctivitis, which should not be classed with this group of cases, nothing of importance was said of this disease until Stevens and Johnson⁵ in 1922 described the cases of 2 children in whom ulcers appeared in the cornea, with resultant scarring in 1 and a bilateral suppurative keratitis with perforation and purulent ophthalmia in the other. The latter resulted in total blindness. They felt they had described a new entity of high fever, a generalized eruption of buccal mucous membrane and eye involvement.

In 1930 Wheeler reported a case of this type which resulted in loss of vision in both eyes.

Bailey⁶ in 1931 expressed the belief that the entity described by Stevens and Johnson were forms of erythema multiforme with more eye involvement than that which generally occurs. He likewise reported 3 cases, all of which had some loss of vision. In 1935 Ginandes⁷ added another case to the literature, noting 5 per cent monocytes in the blood and culturing *Staphylococcus aureus* from both conjunctivas and vesicles of the skin, as well as from one eye enucleated for panophthalmitis.

To these contributions we should like to add 2 cases.

Case Reports

Case 1—E W., a man aged 23, clerk, was admitted to Post-Graduate Hospital on November 9, 1939, with a history that he had been in good health until November 6 when he noticed a dryness of his eyes accompanied by a smarting sensation. He felt well on November 7 but that night was awakened by a painful blister on the roof of his mouth. The next day, November 8, he was feverish, and the blister had spread over his tongue and throughout his mouth and throat with resultant dysphagia. A physician gave him 60 grains of sulfanilamide. He developed photophobia and headache, and a rash appeared over his arms, legs, face, and neck.

His past history disclosed anterior poliomyelitis when a child, but with no sequelae.

Examination of his eyes disclosed a catarrhal conjunctivitis, cultures from which showed a *Staph aureus*, nonhemolytic in type but which fermented mannitol with production of acid. His corneas were clear. There was drooling from his mouth with ulceration and crusted vesicular lesions in both nasal passages, and generalized over the mucous membrane of his throat and oral cavity was a sloughing membrane.

His face, forearms, extensor surfaces of arms and legs, chest, and back were covered with round and ovoid macules which faded on pressure. His temperature was 104° F. An infusion of 700 cc. of 10 per cent dextrose was given by his attending physician, Dr. Maurice Bruger, through whose courtesy we are presenting this case.

The next day the macules over his body had become confluent and his temperature was 103° F.

On November 11 a smear from the conjunctiva stained with Wright's stain showed 20 per cent monocytes, the same as that found in his blood smear at that time.

On November 14 the lesion started to dry but the conjunctivas began to show a filmy exudate over both eyes occluding the vision. The temperature was 101° F. (Fig. 1).

On November 15 a marked pseudomembrane had formed. On entering the room one saw a patient whose lids were held tight with a membrane bulging forward in the palpebral aperture through which, deep below, were seen the corneas. The relationship of the cornea to the membrane suggested that seen when one views a fetus through an amniotic sac. This membrane was removed sufficiently to separate the lids and get a better view of the corneas. Another culture was taken, and *Staph. aureus* was again found. The cornea was not involved, a pseudomembrane covered over the palpebral conjunctiva completely. This could be peeled



FIG 1 Crusted vesicular lesions of lips and generalized eruption

off and only here and there leave a bleeding surface. Cod-liver oil was instilled into the conjunctival sac (Fig 2).

On November 16 a new crop of vesicles appeared over both hands. Cultures of these vesicles and stains with victoria blue for elementary bodies were negative. Cultures of the conjunctiva on the chorio-allantoic membrane of a chick were negative for virus or any other organisms.

On November 21 the patient vomited several ounces of blood, probably from ulceration in the esophagus. The eyes showed improvement under a treatment that consisted of cleaning of the eyes twice a day and instillation of cod-liver oil.

On December 1 no membrane was left on the conjunctiva. Blood counts and blood chemistry showed nothing of importance at any time, except a high monocyte count early in the disease. Wassermann was negative, blood culture was negative, and tests for lead and arsenic excretion were normal.

The patient made an uneventful recovery with no corneal involvement occurring at any time. His vision is 20/20 in each eye. There remains, however, a small symblepharon from the outer temporal portion of the right palpebral conjunctiva of the lower lid to the bulbar conjunctiva. This does not interfere with ocular motility. At the time of writing the nails of the fingers of both hands are half way off, with new nails growing in from below (Fig 3).

Case 2. A 4-year-old white girl was first seen at the Lincoln Hospital on July 4, 1939. Her



FIG 2 Pseudo-membranous conjunctivitis



FIG 3 Complete recovery with clear corneas

family history was irrelevant and development was normal. She had had measles at 3 years of age but no other childhood diseases. She complained of frequent sore throat and colds, especially in winter. For the two months previous to admission until three weeks before, she had had a bilateral purulent otitis media. Otherwise she was quite well until three days before admission. The evening before the onset of illness the patient had had a haircut. The barber had used a hair lotion and later that evening the mother had put some "Larkspur" on her hair. She appeared cranky and feverish that evening. The next morning her face was diffusely red-



FIG 4 Confluent erythematous maculopapular eruption

dened and the conjunctivas were injected. During that day the erythema spread to the neck and shoulders and during the next two days included the rest of the body. On the day before admission large blisters formed on her face, arms, and upper part of the body. In some places the blisters ruptured and the dead skin had peeled, leaving a raw cutaneous surface. She complained of intense pain with micturition. The vaginal mucous membranes appeared involved. The patient had a fever but no chills.

Outside of the "Larkspur" and an unknown hair lotion, there was no other medication used, either externally or internally.

Physical Examination The child was acutely ill and obviously in gross distress. The skin of the entire body, exclusive of the scalp, was covered with confluent erythematous maculopapular eruption (Figs 4 and 5). The upper extremities, face, neck, and chest anteriorly were covered with bullous vesicles, ranging in size from a pin-head to large, confluent bullae about 6 inches long and 3 inches wide. Some of the bullae had ruptured, a thin, watery fluid had exuded, and the skin had peeled away, leaving a raw, red, oozing surface. The posterior thorax was the least involved. **Head**—The scalp was surprisingly free of any lesions, the hair border acting as a line of demarcation. **Eyes**—The lids were glued together by a thick, yellow purulent exudate. The eyes could be opened only with difficulty. **Ears**—The skin was entirely off bilaterally. The right drum was thick and scarred, the left drum was dull and had no light reflex. **Nose**—Mucoid secretion obstructed respiration. **Mouth**—The lips were raw and covered with clotted blood, the tongue was heavily coated. The mucous membranes contained large, white ulcerated patches throughout. The tonsils were not involved. The heart and lungs revealed no

abnormalities. The abdomen was negative with no palpable organs, and the vagina revealed inflamed mucous membranes. The balance of the physical examination was negative.

Treatment She was placed on a course of neoprontosil, frequent boric acid eye washes, and gentian violet application to the skin lesions after daily starch baths. Because of the painful mouth lesions preventing adequate food and fluid intake, a continuous infusion for three days was given to supply fluids. Metaphen 1 2,500 three times a day was put into the eyes, and later butyn metaphen ointment was substituted. Vitamins B and C were provided in tablet form, and sedatives were given liberally.

Course **Eyes**—In two days she was able to open her eyes. It was then observed that the corneas were intact. Seven days after onset of illness the discharge noticeably decreased. Vision was intact at all times. Thirteen days after onset a cicatricial ectropion developed, due to scab formation under both lower lids. The corneas were thus partially exposed during sleep, and it was feared that corneal scarring might occur. The scabs were therefore softened and removed in a few days with almost immediate restoration of the eyelids to normal by the tenth day. By the eighteenth day the eyes appeared normal except for the subjective symptom of photophobia—relieved by smoked glasses.

Skin—The bullae were confined to the upper part of the body. These, and other desquamated areas responded well to gentian violet and starch baths. By the eleventh day the skin lesions had assumed a brownish tinge and scaly appearance and the denuded areas were dry. The face was covered with a hard, dry crust. The mouth and lips bled easily. The scalp was not involved primarily, but a small lesion the size of a quarter was noted over the occiput on the eighteenth day. This was believed to have been caused by pressure. It was unlike the other skin lesions. About this time (the eighteenth day) the lesions began to heal almost completely, and three-fourths of the scabs had fallen off or had been removed. She was on the road to recovery.

On the eighteenth day small nontender vesicles appeared on the palms of the hands, and in a few days the superficial layer of skin had come off. The same thing occurred with the soles of the feet a few days later. No scars remained.

Temperature—On admission the temperature was 102.2 F. In three days it had reached a peak of 104.8 F and then slowly dropped to normal by the fourteenth day of her illness and continued so until discharge.

Laboratory The urine test showed a trace of albumin with many red blood cells, but the specimen was not catheterized and the vaginal lesions were severe, so that this was believed to be contaminated. Later the urine cleared. The blood test revealed hemoglobin, 11.2 Gm., red blood count, 3,870,000, white blood count,

8,750, lymphocytes, 43 per cent, polymorphonuclears, 53 per cent, and monocytes, 4 per cent. Five days later the white blood count was 14,600, lymphocytes, 40 per cent, polymorphonuclears, 56 per cent, and monocytes, 3 per cent. On the twentieth day of her illness the blood test showed white blood count, 20,400, polymorphonuclears, 75 per cent, lymphocytes, 20 per cent, and monocytes, 5 per cent. The Wassermann, urea nitrogen, and blood sugar were negative. A mouth culture yielded *Staph. aureus*, a conjunctival culture yielded *Staph. aureus*, *Bacillus proteus*, and *Staph. albus*. Stools were positive for blood (guaiac test).

Discussion

We have since seen a third case which, however, had only a catarrhal conjunctivitis with no membrane formation in the eye. A culture taken from a vesicle of the skin of this case was injected into the anterior chamber of a rabbit and produced a panophthalmia in four days. *Staph. aureus* was the offending organism.

These last 3 cases all had sulfanilamide at some time during their course. With perfect recovery as far as absence of corneal involvement is concerned, one wonders if there could be any relationship of the good recovery to the administration of the sulfanilamide. Herrell and Brown⁸ have shown that sulfanilamide *in vitro* will inhibit the growth of *Staph. aureus* tenfold.

It is interesting that all the cases of Stevens-Johnson disease in which mention was made of the bacteriologic findings in the conjunctiva showed the *Staph. aureus* either alone or with other organisms. Whereas it is true that 68 per cent of normal individuals will show staphylococcus in their conjunctiva on culture, usually the albus, the constant finding of this organism in these cases seems to us to be significant.

The cause of the erythema multiforme so reduced the vitality of the tissue to allow the organisms to better attack the eye and skin. From the culture taken from Case 1 and injected into the anterior chamber of a rabbit a panophthalmia resulted, no effect was noticed on either conjunctival instillation or subconjunctival injection.

At the present time, studies are being made with sulfathiazole, first, to see if it is secreted into the anterior chamber and, second, to see if it will prevent staphylococcal infections of the globe. Experiments *in vitro* show it to be ten times as effective against *Staph. aureus* as sulfanilamide.



FIG 5 Appearance with gentian violet application

Whereas it is impossible to be sure on only 2 cases that the care and handling had anything to do with the favorable result, it would seem that daily observation of the eyes before complications develop, with the thought in mind of preventing the collection of pus and giving consideration to the use of some agent that will act bacteriostatically in regard to the staphylococcus, seems at the present time the best way to help prevent the usual fatal ocular outcome.

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Case Reports

BRUCELLOSIS WITH POSITIVE BLOOD CULTURES AND NEGATIVE ALLERGIC SKIN TESTS

Report of Two Cases

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THE following 2 cases had positive blood cultures for *Brucella abortus*, and positive agglutination reactions. The allergic skin tests with Brucellergen (Huddleson) showed erythematous reactions at twenty-four hours with negative readings at forty-eight hours. These skin reactions would usually be considered as negative.

Case Reports

Case 1—P P, a girl, aged 7, who had consumed raw milk for some time, was admitted to the Pediatric Service of the Mary Imogene Bassett Hospital on October 13, 1939, having been taken ill seven days before with chilly sensations, general malaise with flushing, nausea, and vomiting, and a fever fluctuating between 102 and 105 F. On admission the temperature was 103 F, pulse, 120, respirations, 20, blood pressure, 110/80. She was a young girl who was warm and flushed and in no acute distress. On general physical examination she seemed normal except for an enlarged, palpable spleen. The heart was not enlarged and the rhythm was regular, but there was a soft blowing, systolic murmur at the apex.

The blood count showed hemoglobin, 91 per cent, red blood cells, 4,750,000, white blood cells 4,700, polymorphonuclears, 68 per cent, small lymphocytes, 25 per cent, large lymphocytes, 4 per cent, monocytes, 5 per cent, smear, normal. The Wassermann reaction was negative in both antigens. The Widal and heterophil antibody agglutinations were negative. The stool culture was negative for organisms of the enteric disease group. The patient's serum showed agglutination with *Br. abortus* in dilution of 1 to 40. The allergic skin test with Brucellergen (Huddleson) at twenty-four hours, showed an erythema of 2.5 cm in diameter which was only slightly elevated, and the test was negative after forty-eight hours (October 16, 1939). The blood culture grew out *Br. abortus* on bacto-tryptose agar media under increased CO₂ tension. The opsonocytophagic test was not performed.

In the hospital the patient continued to run a swinging temperature but otherwise felt quite comfortable and had no complaints. She was started on sulfanilamide (October 21, 1939) without any striking results. The white blood count dropped to 2,900 with 48 per cent polymorphonuclears, so the sulfanilamide was stopped after the patient had received 15.8 Gm. The temperature slowly dropped to normal and the patient was discharged on October 31, 1939. The agglutination titer with *Br. abortus* rose to 1 to 320 (October 30, 1939) and, when the patient was

next seen in the outpatient department on November 15, 1939, she was apparently well and the agglutination reaction was negative. This case is reported through the courtesy of Dr. Marjone F. Murray.

Case 2—K C, a schoolboy, aged 14, who had consumed raw milk for a number of years was admitted to the Medical Service of the Mary Imogene Bassett Hospital on December 20, 1939. About one and one-half weeks prior to entry he contracted a head cold, which persisted, and three days before admission he was suddenly taken ill with nausea, vomiting, and headache. The next day there was some substernal discomfort. On admission, the temperature was 104 F, pulse, 110, respirations, 28, blood pressure, 110/58. The patient was a slight young lad, flushed and toxic. The general physical examination revealed signs of consolidation over the right lower lung posteriorly. The spleen was not palpable.

The blood count showed hemoglobin 78 per cent, red blood cells, 4,680,000, white blood cells 14,250, with 93 per cent polymorphonuclears. The sputum was rusty and tenacious and a *Diplococcus pneumoniae* type I was identified by the Neufeld reaction. This was confirmed by culture and inoculation of a mouse. The Wassermann reaction was negative in both antigens. The patient's serum agglutinated *Br. abortus* in dilution of 1 to 320. The allergic skin test with Brucellergen (Huddleson) showed approximately 15-mm erythema at twenty-four hours and was negative at forty-eight hours (December 30, 1939). The opsonocytophagic test with *Br. abortus* showed slight phagocytosis (December 29, 1939). The blood culture grew out *Br. abortus* in beef infusion broth under increased CO₂ tension.

On the night of admission the patient was given 200,000 units of New York State antipneumococcus serum, type I, intravenously. The temperature gradually came down to normal in the course of the next few days, and the patient was greatly improved. On the tenth hospital day there was a slight elevation of temperature, and it was discovered that the patient had a pleural effusion on the right. Thoracentesis revealed cloudy yellow fluid with the characteristics of an exudate, sterile on culture. Symptomatically, this complication did not bother the patient and he proceeded to improve.

A repeat of the Brucellergen skin test (January 8, 1940) showed approximately 15-mm erythema at twenty-four hours and a 4-mm papule, 20-mm erythema at forty-eight hours.

The agglutination titer with *Br. abortus* rose to 1 to 640 on January 5, 1940, and another blood culture taken on January 8, 1940, showed no growth after fourteen days.

The patient was discharged on January 13, 1940, feeling quite well, with a normal temperature. He was seen in the outpatient department on January 22, 1940, his temperature having been essentially normal for eight days. His blood serum agglutinated *Br. abortus* in a dilution of 1 to 320. This case is reported through the courtesy of Dr. George M. Mackenzie.

BENIGN INTRATHORACIC GOITER WITH RECURRING PLEURAL EFFUSION

Report of a Case

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DURING recent years considerable attention has been given to the importance of the recognition of intrathoracic goiter.¹⁻³ The patient whose clinical record is here presented manifested the unique complication of a recurring pleural effusion during the latter several years of an eighteen years' existence of an intrathoracic goiter. Outside of Schultze's⁴ report of a case of intrathoracic goiter complicated with a chylothorax, no other description of a pleural effusion complicating a benign colloid intrathoracic goiter was found in a survey of the literature. Although this case was presented for diagnosis at a hospital conference,¹⁰ it appears to be of sufficient interest to warrant its presentation in the form of a complete case report.

Case Report

On April 30, 1937, a 61-year-old Jewish woman consulted me because of a dry hacking cough, shortness of breath, a sense of oppression in the upper part of the chest, and choking spells. Although these symptoms were mainly complained of for the two and a half years before this date, the patient's present illness really dated back to August, 1920, at which time she first experienced the above-mentioned symptoms. A few months after this she entered the Mount Sinai Hospital in New York City where it was noted that she had an encapsulated mass the size of a plum in left lobe of the thyroid. Roentgenologic examination revealed a large mediastinal tumor not having any definite connection with the former mass in the thyroid. An operation on the mediastinal tumor was advised, but the patient refused.

From March, 1921, to June, 1923, the patient received a series of seven radium treatments applied to the superior mediastinum. Remarkable symptomatic improvement followed. She gained about 20 pounds in weight and for the following twelve years she felt extremely well. However, in March, 1935, following a respiratory infection, a right-sided pleural effusion occurred. From this time on she began to suffer from symptoms of mediastinal compression. Thoracentesis gave her relief, the first one being performed a month after onset of the effusion. At this time 1,400 cc. of a clear yellow fluid, having all the characteristics of a transudate, was obtained from the right side of the chest. From this time

These cases illustrate that the allergic skin test may be negative at forty-eight hours, even though active infection is present, and that the twenty-four-hour reactions, even though slight, may have been of some significance. In Case 2 there is the possibility that the development of skin sensitivity may have been retarded by the presence of the pneumococcal lobar pneumonia.

until her death on March 6, 1938, a thoracentesis was performed every month or two for relief of respiratory distress.

The family, marital, personal, and past histories revealed nothing of importance or pertinent to the present condition.

Physical Examination—The patient was well developed and nourished, weight, 115 pounds, height, 5 feet. She was in considerable respiratory distress. Her pulse was 96 and regular. Her temperature was 99 F. and blood pressure 140/90. A moderate degree of cyanosis was present in lips and fingernail regions. Telangiectatic lesions, presumably from radium irradiations, were scattered over the upper anterior part of the chest. A marked and advanced dilated and anastomosing network of veins was present over the superior mediastinum, and this extended into the right axillary region and down the chest nearly to the right costal margin. There was a boggy thickening of the skin and subcutaneous tissues in the region of the thyroid gland, but no masses or enlargements could be made out. No thyroid gland was felt in the suprasternal notch. Increased width of percussion dullness was noted in the superior mediastinum. Her heart appeared to be of normal size and was not displaced to the left, and outside of a systolic murmur heard at the apex nothing unusual was found here. Signs of fluid were present in the lower third of the right side of the chest posteriorly. The liver edge was felt at the level of the umbilicus, and it was smooth and nontender. The upper limits of the liver merged with the fluid dullness. Rectal, pelvic, and sigmoidoscopic examinations revealed no abnormal findings. Complete laboratory investigations were all in the normal range, this included studies on urine, complete blood counts, sedimentation rates, and serologic tests for syphilis. The fluid obtained from another thoracentesis was carefully studied, and histologic examination of the sediment and guinea-pig inoculation for tuberculosis were negative. Roentgenologic studies again showed the same character of a mediastinal tumor as seen previously. No evidence of metastatic lesions was seen in the chest after withdrawal of the fluid. Roentgenologic investigation of the gastrointestinal and genitourinary tracts shed no light on the diagnostic problem.

Further Course—In October, 1937, the patient entered the Baker Memorial Hospital in Boston



FIG 1 Shows enlarged mediastinal shadow, fluid in the right side of the chest, and displacement of trachea to right and esophagus to left



FIG 2 Photograph of anterior view of necropsy specimen of the intrathoracic goiter in relation to the lungs and large vessels at the base of the heart

Intensive studies and careful observations here failed to establish a definite diagnosis, but the consultants who examined her felt that a substernal thyroid was a likely diagnosis, although a malignant degeneration of the gland could not be ruled out. Fig 1 is from a roentgenogram taken at this time, and shows the trachea somewhat displaced to the right and the esophagus to the left by the mediastinal mass. A moderate amount of fluid is seen in the right side of the chest, although at other times fluid was seen to extend up to level of clavicle. An operation was advised but was again refused, and on a second admission to this same institution the patient died suddenly on March 6, 1938. Permission for an autopsy limited to the chest was obtained.

Report of Main Findings at Autopsy (under supervision of Dr Tracy B Mallory) — "*Pleural cavities* The right side of the chest contains about 3 l. of clear straw colored fluid, and the left about 800 cc of similar fluid.

"*Thyroid gland* (see Fig 2) The thyroid is very much enlarged forming a mass extending from the inferior border of the thyroid cartilage for a distance of 13 cm down behind the sternum to the arch of the aorta. The mass measures 8.5 cm in width and 3 cm. in thickness. It is composed of four large nodules, one of which lies entirely within the mediastinum and measures 5 by 5 by 2 cm. This nodule compresses the left and right innominate veins and displaces the innominate artery and left common carotid laterally. This tumor mass is moderately firm but not hard in consistency. It is completely encapsulated and shows off the surrounding structures with ease. The mass has a varying cut surface. In some areas it is composed of a very homogeneous tissue dotted with tiny flecks of colloid and in others it is composed of fairly necrotic material, containing large areas of colloid and numerous foci of calcification."

Microscopic examination of thyroid gland "Several sections through the thyroid show different microscopic pictures. In one area the acini are markedly dilated, have very low epithelium, and are filled with colloid. In these foci, the stroma is abundant, dense, and hyaline. There are no lymphoid foci or any evidence of hyperplasia malignancy."

Anatomic Diagnoses — "Substernal thyroid, struma nodosa micro et macro-folliculare with compression of the right innominate vein, hydrothorax, bilateral, pulmonary atelectasis, right, pulmonary emphysema, slight, right, pulmonary edema, left, pleuritis, chronic fibrous, bilateral."

Comment

Pressure on such important veins as the innominates certainly seems a likely reason for the recurring pleural effusion. However, other unusual features must have been in operation as, hydrothorax has not been reported in other cases of intrathoracic goiter in which probably similar degrees of pressure on vessels had been present. The many years of existence of this mediastinal mass in this patient undoubtedly subjected the venous collateral system seen on the chest wall to a severe strain, and the respiratory infection was a sufficient additional factor to usher in the effusion.

Summary

A report of a case of a patient with recurrent pleural effusion complicating a benign intrathoracic goiter is presented. The salient features of the eighteen-year course are reviewed, and emphasis is placed upon the interest and rarity of this complication.

I wish to express my indebtedness for the permission to use hospital records and other valuable data concerned with this report to Drs. Bernard M. Jacobson and Tracy B. Mallory, both of the Massachusetts General Hospital, Boston, and to Drs. L. Whittington Gorham and Thomas Ordway, both of the Albany City Hospital, Albany, New York. In addition, I am grateful

to the various hospitals that allowed me free use of their records

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PNEUMOCOCCIC MENINGITIS, TYPE XIII, COMPLICATING FRACTURE OF THE SKULL

Recovery Using Sulfapyridine

WALTER D. LUDLUM, JR., M.D., and CARL A. PETERSON, M.D., New York City

C. M., a well-developed and well-nourished married laborer, aged 40, was carried unconscious into the Reconstruction Hospital, December 27, 1938, following a fall from a truck. He remained unconscious for about fifteen minutes.

He bled profusely from the nostrils. The mouth was filled with a frothy, blood-stained fluid. He was cyanosed and breathed with difficulty. An ecchymosis and swelling had completely closed the right eye. There was a superficial abrasion of the right temporoparietal region.

The temperature on admission was 99 F., pulse, 120, respirations, 18, blood pressure, 130/70. The pupils were equal and slightly dilated and they reacted sluggishly. Knee jerks and abdominal and cremasteric reflexes were absent. The Babinski sign was present on the right. An x-ray showed a fracture of the right parietal bone which extended into the base of the skull.

The patient was rational and cooperative during the first day after injury. Neurologic examination revealed no localizing signs of intracranial injury, no evidence of increased intracranial pressure, nor any evidence of meningeal irritation. Spinal puncture revealed a faintly bloody fluid under normal pressure.

Thirty-six hours following injury, the patient became semiconscious and delirious. In twelve hours his temperature rose from 99.8 to 105.6 F., with an increase in the pulse to 134 and respirations to 34. Nuchal rigidity, Brudzinski, and Kernig signs were positive. Spinal fluid was xanthochromic and somewhat cloudy and was under a pressure of 35 mm. of mercury. A

cell count showed 2,100 red blood cells and 1,590 white blood cells per cubic millimeter of spinal fluid. A smear failed to reveal organisms.

Eighty grains of sulfanilamide were administered during the succeeding twenty-four hours without appreciable effect (Chart I).

Spinal fluid culture (after twenty-four hours' incubation) revealed pneumococci of type XIII. On ascertaining the type of the infection, sulfapyridine (then available only for experimental purposes) was substituted for the sulfanilamide. An initial dose of 5 Gm. of sulfapyridine was given by mouth, followed by 2 Gm. every four hours for a period of forty-eight hours. Signs of the meningeal infection regressed, and the temperature dropped from 104.6 to 101.8 F. in twenty-four hours.

Seventy-two hours following the administration of the sulfapyridine, the temperature and pulse had returned to normal, and no signs of the meningitis remained. The cell count of the spinal fluid dropped to 260 white blood cells per cubic millimeter. A persistent nausea and occasional vomiting interfered with an adequate intake of the sulfapyridine, and only 9 Gm. were retained in the subsequent forty-eight hours. The concentration of the drug fell from 19.7 to 4.3 mg. per hundred cubic centimeters in the blood, and from 8.8 to 3.5 mg. per hundred cubic centimeters in the spinal fluid (Table I).

On the sixth day postinjury, the temperature climbed abruptly from normal to 104.3 F. The patient became semiconscious and delirious, and nuchal rigidity with other signs of meningeal inflammation reappeared. The spinal fluid white cell count rose to 1,310 per cubic millimeter. Twenty-six grams of sulfapyridine were given in the following seventy-two hours. The patient again became rational, the temperature returned to normal, and the signs of the meningitis subsided.

From the service of Dr. H. H. Rutter, Reconstruction Hospital Unit of the New York Post-Graduate Medical School and Hospital, Columbia University.

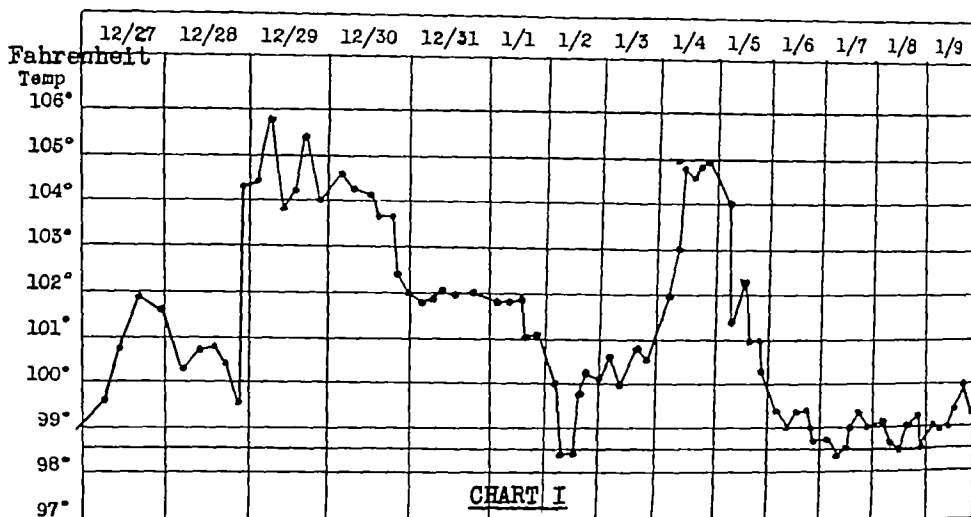


TABLE I

Date	Cells per Cu Mm	Initial Pressure (Mm)	Dose Sulfapyridine (Grams)	Concentration of Sulfapyridine in Blood, Mg per 100 Cm.	Concentration of Sulfapyridine in Spinal Fluid, Mg per 100 Cm
12/29	3,700	35			
12/30	9,000? (clumps)	10	7		
12/31		10	12	14.5	9.5
1/1	1,510	22	12	19.7	8.3
1/2			6		
1/3	260	14	3		7.1
1/4	1,310	16	11	10.5	9.5
1/5	1,120	17	8	4.8	3.5
1/6	830	10	7		9.5
1/7	130	6	6	13.4	9.5
1/8	43	5	6	6.0	6.4
1/9	60	6	5	5.2	3.3
1/10	260	8		2.2	2.2
1/11	460	6		0.00	0.00
1/12	670	6		0.00	0.00
1/17	10	12			
1/21			6		
1/22			5		
1/23			3		
1/24			3		

The sulfapyridine was continued for three days more. The culture of the spinal fluid was negative on these three successive days. Repeated blood cultures were also negative.

The patient complained, however, of pain and discomfort in the right side of the chest. There was an evening rise in temperature. Signs of bronchopneumonia with pleurisy involving the right side of the chest were found, and these findings were confirmed by x-ray. Sulfapyridine was again administered in comparatively small doses of 4 Gm. in twenty-four hours for four days. The temperature returned to normal and the chest signs disappeared.

The patient was discharged forty-two days following admission to the hospital. The only residual was a complete deafness of the right ear. It is difficult to say whether this deafness was the result of a lesion of the eighth cranial nerve due to a fracture of the skull, the result of

the meningitis, or the result of the sulfapyridine. He returned to his regular work six months after the accident.

Conclusions

A case of type XIII pneumococcal meningitis complicating a fracture of the skull and treated by sulfapyridine with recovery is reported.

The type XIII pneumococcal meningitis has not been reported in the literature previously.

Consultations by Dr. Henry H. Ritter, Dr. Jesse Godfrey M. Bullowa, Dr. Abbott W. Allen, and Dr. Morris Rosenthal are gratefully acknowledged.

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Without cooperation of the people, a doctor can no more prevent tuberculosis than he can

prevent accidental drowning—U S Pub Health Serv Rept, December, 1940

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors. The next report will appear in the October 1 issue and will concern "Management of Constipation."

General Management of a Seriously Ill Patient

DR EUGENE F. DuBOIS. The subject to be discussed is the care of the seriously ill patient suffering from a febrile disease.

In introducing this subject I should like to remind you of some of the aspects of pathologic physiology in fevers. First, we have the specific manifestations for each different disease. I shall not consider them but take up the nonspecific manifestations that are common to most febrile diseases.

There are many balances that are upset in fever. The most striking is, perhaps, the balance of temperature regulation, the temperature-regulating center being set at a higher level and more variable in its setting so that the temperature usually goes up and down at different periods of the day. In few fevers is a fairly constant level maintained.

Heat production, one side of the balance, is usually increased in proportion to the fever. Heat loss is also increased but is variable. Sudden increases in heat production are usually accomplished by chills. Therefore, a chill is an evidence of a sudden rise in the setting of the temperature-regulating center. Sudden losses of heat when the temperature-regulating center is lowered are usually accomplished by sweating. Those are the emergency mechanisms. Smaller variations can be taken care of by changes in the circulation of blood to the skin and minor adjustments of vaporization.

The caloric balance is grossly upset. The caloric output is increased, and the caloric intake is almost invariably diminished because of lack of appetite. The protein balance is upset the same way, in that the protein loss by protein destruction is increased, probably as the result of toxins in the disease. The protein intake is greatly diminished, the carbohydrate balance is upset. In a similar way the carbohydrate stores in the liver are diminished.

Perhaps most important clinically is the

upset in water balance. The output of water is increased through the higher skin temperature and increased respiration. The water intake is greatly diminished, the biggest source of diminution being the lack of solid food which is our main source of water.

Recently, we have been realizing the importance of the upset of the vitamin balance. It looks as if the demand for vitamins might be higher in disease. Their intake is greatly diminished not only by the diminution in the food, but also there may be changes in the absorption of the vitamins, especially in diarrheal diseases, and perhaps there is also an increased rate of destruction.

The mineral balance is upset and perhaps we have not paid enough attention to the changes in sodium chloride, that is, to the diminished intake due to lack of food.

Now, apart from these upsets in balances we have to remember that the tissues in the body may be damaged by the toxins of the disease. The therapeutic measures employed to meet these changes will be discussed by Dr. Guion.

DR CONNIE M. GUION. What I have to say is chiefly concerned with the practical side of taking care of a very sick patient.

The first step to be considered in taking care of any sick person is to try to find out with what type of man you are dealing, to try to learn his likes and dislikes and his idiosyncrasies, and then to fit the methods of treatment into that patient's personality. In the light of this information I explain to a patient, as fully as seems desirable, the nature of his disease, the length of time that I expect him to be ill, and the plan of treatment I have formulated. It is only by such a method that one can obtain the confidence and cooperation of the sick person. I think we do not realize how much sick people worry about how long they are going to be sick and how sick they are going to be.

Another important preliminary step is the choice of a nurse, because I take it for granted this seriously ill patient will have to have one I select my nurses as carefully as I do my drugs. A sick patient does not wish to hear chatter or a discussion of the nurse's or doctor's personal affairs. They do not like bustle, and they do not like continual treatment. Patients, in the hospital especially, are worn out by the end of the day, and one of the doctor's chief functions is to plan a regimen assuring the patient definite rest—rest from his family, from his friends, and from too much care.

The care of the body in general is important. If a patient is not physically comfortable, he does not get well so fast as he does when he has no physical discomforts.

It is not essential to bathe the entire patient at one time, how much of the patient is bathed must be limited by his reaction to it. Alcohol is often used after a patient is bathed. Cold alcohol should never be dashed on the skin. The alcohol can be set in warm water and brought to body temperature before it is used. After its application it should be rubbed dry so that the patient will have the benefit of the friction to the skin, which is an important part of the bathing.

The type of alcohol to be used is also a problem. You can secure medicated alcohol on the market. Most of it has a vile odor because it is medicated with formaldehyde or other disagreeable agents. I usually order a 50 per cent alcohol without any type of perfume, because sick people get tired of smelling any one odor.

The treatment of sweating is another problem. Dr DuBois has spoken of this. Patients who sweat continually should have a bath every four to six hours and then the skin should be rubbed with 95 per cent alcohol rather than 50 per cent alcohol. This decreases the amount of sweating, improves the state of the skin, and increases the peripheral circulation. After a patient has been rubbed dry, it is a good idea to give a massage with either olive oil or with liquid petrolatum. It improves the quality of the skin and prevents it from becoming dry after the use of the alcohol.

Patients who have periodic sweats, causing the night clothes and the bed to become wet, should not have their clothes changed while they are still in a profuse perspiration. If they are extremely uncomfortable when the shirt is wet, we should wait until we are sure the bout of perspiration is over, then give a

warm bath, followed by a massage with 5 per cent alcohol and a change into a warm shirt and bed clothes.

The matter of draw sheets and rubber sheets I think is important. A rubber sheet makes a patient sweat much more than you realize and, if you have ever lain on a rubber sheet very long, you will know it is extremely uncomfortable. If a patient is not incontinent, I think a rubber sheet, except in those hospitals where we have to follow routine, is usually inexcusable. Draw sheets are often placed too low in the bed and, naturally, as the patient lies on the bed the draw sheet is drawn down. It is important to see that it is applied high enough so that it does not become rumpled right under the patient's buttocks.

False modesty often prevents proper cleansing of the genitalia, especially in women. Here there may be a vaginal discharge, and it is important to give a woman a douche if she has a discharge. Many times the peculiar odor which is detected when the bed clothes are thrown back is due not to sweating but to unclean genitalia.

The care of the mouth is difficult in extremely ill patients. To use a toothbrush is often impossible. I find that one of the easiest ways to cleanse a patient's mouth is to use a syringe—Becton Dickinson's Asepto No 2082. With it you can force the water, or whatever cleaning material you are using, through the teeth. Then I use a swab or toothpick to remove any sordes or other material from the gums and between the teeth. A mixture of equal parts of a 3 per cent solution of hydrogen peroxide and 3 per cent solution of boric acid forms a good mouth wash. It cleanses between the teeth and the tongue. This is much more pleasant than having the tongue scraped.

If there is any soreness in the mouth, I use a combination of glycerin and phenol in boric acid as in this formula.

R_x

Phenol 5 per cent	
Glycerin aa	30 00
Boric acid solution 3 per cent	
qs ad	240 00

This is a pleasant tasting preparation and is also slightly anesthetic.

Many things can be done to prevent the mouth and the tongue from becoming dry. One of the simplest measures is to use a cheesecloth mask over the mouth, keeping it moist by dropping water on it. Also, the

tongue can be kept moist by the application of a mixture of strained lemon juice, glycerin, and liquid petrolatum in equal parts. The cleansing of the nose and throat will often relieve mouth breathing and coughing. Albolene should be instilled into the nose, a little at a time. The patient then holds his head down and blows his nose gently. A tampon of argyrol is effective in relieving congestion. Often the pharynx is red, glazed, and streaked by a postnasal discharge. This may be the cause of a great deal of coughing and hacking, which can be relieved by gargling with bicarbonate of soda (one-half teaspoonful to the glass of hot water) or with the old Manhattan gargle.

R_x
 Sodium salicylate
 Sodium bicarbonate
 Sodium baborate aa 30 00
 Sig One-half teaspoonful to a glass of hot water

Persistent coughing exhausts the patient and should be controlled. This may be accomplished by regulating the temperature of the room, by the continuous use of a steam kettle, or the treatment of a sinusitis. If these methods fail, codeine or morphine should be given in effective doses.

I use this prescription

R_x
 Codeine 0 008
 Ammonium chloride 0 06
 Terpin hydrate 0 25
 Sig One capsule q 2 to 4 hours

Another soothing prescription is this

R_x
 Spirit of camphor
 Oil of turpentine
 Olive oil aa 60 cc
 Sig Apply to chest on a flannel bib and inhale the fumes

The lips should be protected from cracking by the frequent application of liquid petrolatum. When fever blisters once appear they should be painted immediately with tincture of benzoin. This forms a waterproof coating over the blister and prevents the patient's licking the blister and irritating it. The worst thing you can do for fever blisters is to apply any kind of grease.

Nausea and vomiting present two of the most serious problems in the seriously ill patient. The longer nausea persists and the more a patient vomits the harder it is to control them. The simplest method of con-

trolling nausea is to try to empty the stomach into the intestine rather than to allow the patient to begin vomiting. As long as peristalsis is in force a patient does not vomit. I give a patient repeated cups of hot water until one is held down. Usually by the second or third it is retained. If the hot water is not retained and there is objection to drinking hot water, you can add a little tea or a few drops of essence of peppermint, ammonia, bicarbonate of soda, or salt. People have the idea that hot water will cause vomiting. Hot water will not make a person vomit if really hot, lukewarm water will. At the same time you can apply a mustard plaster to the epigastrium. I usually prescribe mustard plasters small in dimensions so that I may repeat them and not irritate the skin. I use a mustard plaster about 2½ to 3 inches square and place it at different spots over a period of an hour or several hours, as is necessary. If this does not control the vomiting, I give intravenously 50 cc of a 50 per cent solution of glucose. This will stop the vomiting of almost all types. It can be repeated as often as it is necessary.

The carbonated drinks are also helpful. Ginger ale, any of the carbonated waters, Vichy, champagne are all efficacious in relieving mild nausea. Sometimes giving a patient a solid meal will be effective. The use of compound tincture of gentian, 30 minims every fifteen minutes for four doses, followed by a steak which has been cooked rare and well salted, will often stop persistent vomiting. When all of these methods fail, the thing to do is to insert a stomach tube through the nose. If the nose and throat are well cocainized, the stomach tube can be introduced without difficulty. By the use of a stomach tube we can not only wash out the stomach effectively but we can also give fluid and food, which I will mention later.

The question of the bowels is another important one. I never give the patient in bed a cathartic large enough to produce a number of stools. My object always is to give a small enough dose so that the upper bowel will be emptied and then use a small enema to cleanse the lower bowel. Milk of magnesia, in doses of one-half to a tablespoonful or two, acts well. However, if a person has any specific cathartic to which he is wedded, I am always glad to have that used. An enema is by far preferable to cathartics that will require the patient to use the bed pan two or three times. When a patient is extremely ill, I think a high colonic irrigation

is much easier on the patient than an enema because he can lie on his side and the bowels can be washed out without any difficulty.

Diarrhea occurs occasionally in fevers, and usually the first thing I do is to give the patient a dose of castor oil if there is no contraindication to it. That will often stop the diarrhea. If it does not, I follow it up with the use of bismuth in some form—milk of bismuth, bismuth subnitrate, or bismuth subcarbonate. We usually give bismuth in doses too small to be effective. I use a teaspoonful, stir it into water until it is smooth, and repeat this every hour or every two hours for three or four doses.

Distention is another troublesome symptom in fevers. It may be prevented by watching the diet, especially limiting the use of fruit juices and sugar. There was a time when fruit juices, especially orange juice, were given first and to such an extent that patients were blown up, the results being worse than with any other food except, perhaps, the addition of glucose or lactose. So the first thing to do is to cut down the sugars—the carbohydrates in general.

A trick that I learned from one of the nurses is to use a rectal tube, the free end of which is inserted in a urinal that has been prepared as follows. The urinal is filled with boiling water and allowed to stand until hot. It is then emptied, except for a small amount of water to which is added 10 to 15 drops of the essence of peppermint. Then the rectal tube is put into this just above the hot water. The secret of this is the use of hot water which causes a partial vacuum in the urinal and, therefore, aspirates the gas out of the intestine. At the same time that the rectal tube is used, some form of heat, such as a hot-water bag, should be applied to the abdomen. If this does not succeed, wet heat, such as the turpentine stupes, may be used.

If these do not succeed, I often use a milk and molasses enema. I do not know how many of you have ever used this, but it is the most effective form of enema there is. I use 1 cup of molasses and 1 cup of milk, warm each separately, and stir them up together. I suppose it is effective because it is a hypertonic glucose solution. I have never seen it fail. It will always empty the bowel and relieve the patient of distention, at least temporarily.

Then we may use a colonic irrigation preceded by an injection of 10 units of pitressin or pituitrin, about a half an hour before

Pitressin may be repeated half an hour after the first injection, if necessary.

The question of fluid intake must be settled by the output of the patient, by the rate at which the patient is breathing, the amount of sweating, the consistency of the stools, and the volume of the urine. From a practical point of view you can judge the specific gravity of the urine by simply looking at the color. Thirst is also a helpful sign. Patients, I think, should never be allowed to go thirsty, we should not limit their intake to that point. So, you cannot set an arbitrary figure for the amount of fluids you are going to give a patient, but you must be guided by the general picture.

Then there is the question of the method of introducing the fluid. A good nurse can almost always get a sufficient amount of fluid by mouth into even the sickest patient. It is hard to get sufficient fluid through a tube. The best way to introduce fluid into the mouth of a sick patient is by a syringe. Formerly, we used drinking cups and, although they do not seem to be the style any more, they often are helpful.

When a patient is delirious, certainly a glass tube should never be used. There is now on the market a cellophane tube. These are durable and are much better than the old tubes that were made of paper. I use these almost exclusively instead of glass tubes.

If oral feeding fails, I next try feeding by the nasal tube. It has the advantage of enabling you to follow the digestion of the food you are giving and to tell just how rapidly the fluids that are being put into the patient's stomach are being absorbed, because you can aspirate every once in a while to see whether or not absorption is taking place. The use of the stomach tube prevents the discomfort of the use of needles and the fatigue that always follows the use of both clyses and infusions. I try to avoid those as long as I can.

If it is impossible to use a stomach tube for any reason, I like to use an intravenous injection rather than a clysis, because clyses almost always make the legs sore and the patient uncomfortable.

The volume of an injection should never be over 1,000 cc in the ordinary sick patient. In diabetes it is a different matter. Two injections a day are as much as I usually give. The fluid to be used is normal saline solution with or without 5 or 10 per cent glucose. When you are giving a clysis, the skin should always be cocaineized before the introduction

of needles, otherwise the pain from sticking the needles into the leg makes the patient nervous and he is uncomfortable during the entire clysis. If the skin is cocaineized he does not realize he has been stuck and does not appreciate any discomfort unless the leg begins to swell. The amount of fluid to be used in any clysis should not be over 500 cc through each needle, and it should be introduced at a rate slow enough to allow absorption and to prevent the leg from becoming hard.

I prefer not to use sugar solution in clyses. If you have used it often, you know that after one or two injections the absorption is slowed down so that the procedure is painful. The difference between the benefit the patient gets with the small amount of glucose added to the solution and the added discomfort is not worthwhile. A normal saline solution is absorbed quite rapidly. If I feel that a patient needs sugar, I give 50 to 100 cc of a 50 per cent glucose solution intravenously during the clysis. This has the advantage of increasing the rapidity of absorption of the clysis because of the introduction of the hypertonic solution. It is also helpful if hot-water bags are applied over the legs and gentle massage is used frequently during the injection.

The question of sleeplessness, restlessness, and nervousness is extremely important. I think that restlessness and nervousness may be prevented to a large extent by our taking the patient into our confidence in the beginning and letting him know just how sick we feel he is. Another thing that gets the patient nervous and makes him restless is whispering in the patient's room. I think, when we talk in a patient's room it is far better to talk in an ordinary quiet tone of voice than it is to go around whispering. If he is so sick that you have to whisper, he is usually so sick he does not know what you are saying and you only add to his subconscious restlessness.

Cold cloths applied to the head or cold packs and warm baths followed by a gentle massage will do a great deal toward putting a patient into a frame of mind where he will go to sleep. If the patient is nervous and if some form of mild sedative is used during the day, we can prevent the extreme restlessness when darkness comes on. It is a perfectly natural thing that a patient should have a dread of the night, and our object always is to put the patient into a quiet frame of mind before nightfall. One good way to do this is by using small doses of sedative, beginning around

3 or 4 o'clock in the afternoon. I use quite often an old drug that the students probably have never heard of—trional. I usually begin with 0.12 Gm (2 grains) and repeat every two hours for five doses, and by the time the fifth dose is given the patient is usually ready to go to sleep. I also use chloral and bromide a good deal. I usually prescribe it in these proportions: 0.3 Gm chloral and 0.6 Gm bromide, and I give that dose after each meal—at bedtime double the dose. For patients who are unable to go to sleep but who sleep well after its induction, nembutal, phenobarbital, or any other drug of this type is effective. There are a great many people who have a constitutional objection to taking anything to make them go to sleep. These people can be given a sedative by rectum, and they never know they are not getting a plain enema. You can use 0.6 Gm of chloral and 1.2 Gm. of bromide or paraldehyde in doses of 4 to 12 cc in about 100 cc of starch paste. You can also give any of the common sedatives, such as medinal and amytal, in a suppository, using 0.3 to 0.6 Gm.

If one is unable to control sleeplessness and restlessness by these simple methods, a lumbar puncture oftentimes is effective, removing a sufficient amount of the fluid to bring the pressure down to normal.

Formerly, in typhoid fever we always used Brand baths. Nowadays, I do not know whether any men recommend using Brand baths or not, but the cold pack is certainly effective and any nurse knows how to give one.

The question of anorexia is important. When the patient gets over the immediate acute condition, starvation exaggerates anorexia and, therefore, it is wise to feed the patient from the start of the illness. Nothing makes a patient dislike food more than a constant discussion of the food. His chief dislikes should be avoided. His favorite foods had better be shunned too as they rarely meet the patient's expectations. The simplest method is to feed innocuous foods, to feed these in small amounts, attractively served. If they are given every two hours, I think the patient can easily be given the proper amount of calories and still not feel that he is being overfed. The choice of the diet to be given depends to a great extent on the patient's habit of food. As I have said before, often people get tired of liquids and, if you will give them a solid diet, they will take it and take it with pleasure. One of the best things to aid in appetite is to use one of the bitter

wines, vermouth being excellent to relieve anorexia I give 0.5 to 1 ounce of vermouth before meals or with meals, or I use a bitter wine of iron—an old preparation that is often effective

Finally, the vitamin intake must be watched and maintained at an adequate level

DR DuBois Several drugs have been discussed I wonder whether Dr Gold would care to comment on trional

DR HARRY GOLD As Dr Guion has said, it is an old one Sulfonal and trional are sulfone hypnotics that have fallen into disrepute for various reasons They can produce hematuria They are slowly absorbed It takes two hours before sleep is produced, but I notice that the way in which Dr Guion prescribes trional takes account of the slow absorption She starts late in the afternoon, giving small doses, and by evening the patient is ready to fall asleep Trional is not so effective an hypnotic as barbituric acid compounds because, even with fatal doses of trional, it is not possible to produce narcosis It has a restricted capacity to depress the higher centers

DR GUION It is more effective in insanity than the later ones, and it is used in some institutions for the insane in preference to some of the more modern products Sulfonal is absorbed slowly, but the trional is absorbed much more rapidly and acts much more quickly Oftentimes you can give a combination of trional and sulfonal and thus keep the patients asleep all night, whereas if you use sodium amytal, for instance, the patients will stay asleep for two or three hours and then they are just as wide awake as they were in the beginning

DR GOLD This shows high persistence of action, which is in line with the results in the laboratory

DR DuBois Do we use them here?

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DR DuBois Do you have any other comments, Dr Gold, on the various drugs or combinations of them used here? Have you seen any incompatibility?

DR GOLD No, not at all I did have a question in mind about the pitressin In what dosage in cubic centimeters was that given?

DR GUION I use $\frac{1}{2}$ cc for the first dose and repeat in half an hour if it is necessary, so sometimes a total of 1 cc is given, but very often $\frac{1}{2}$ cc is all that is needed

DR GOLD Is that a $\frac{1}{2}$ cc of the material with 20 units or 10 units per cubic centimeter? The reason I ask is because there has been some change in the concentration in which it is being put out now

DR GUION I think it is the 20-unit

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DR C H WHEELER That is the same as we use here in the hospital on the Medical Service I would say, as a rule, we give 1 cc rather than $\frac{1}{2}$ cc

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DR GUION Sometimes they do get pale, but I never have seen one who became nauseated or vomited Sometimes the pulse gets quite slow

DR GOLD Would you have any fear of giving it to elderly people suspected of coronary disease or is that not a contraindication?

DR GUION Elderly patients with coronary disease do not usually become distended, and I have never given it to one If such a person were distended and if I could not control it any other way, I would give it, because I think the distention would be more uncomfortable than the reaction

DR GOLD I have in mind the constriction of the coronary arteries by pitressin

DR McKEEN CATTELL I was interested in the choice of the type of hypnotic you use Apparently, what you are after is not the use of substances that are primarily narcotic in their action I suppose the bromides and trional fall into a class tending to bring about relaxation and mental calm, with a decrease of activity but less true narcotic action

DR GUION I think that is what you desire You want to have them calm because then natural sleep will follow

DR DuBois Do you double the dose of chloral when given by rectum?

DR. CATTELL I would be surprised if that were necessary

DR. GUION I double the last dose to carry them through the night and not because it is given by rectum

DR. GOLD How does tincture of nuxvomica stop the vomiting or nausea?

DR. GUION Because it is bitter I think you could use tincture of gentian or, perhaps, any other bitter agent

DR. CATTELL The dose is probably too small to have any systemic effect?

DR. GUION I think that is so

DR. DUBOIS If you use 10 minims of the tincture to the dose, you would have to use 25 drops because the drops of a tincture are small

DR. EDWARD TOLSTOI I should like to make one or two additions to Dr. Guion's remarks It is my policy, in addition to explaining everything rather frankly to the patient, as much as circumstances will permit, to take the members of the family aside and acquaint them with the situation, because it is important to have their cooperation This will save a lot of trouble and avoid the necessity of issuing hourly bulletins over the telephone to the aunt and second cousin or others I recall Dr. Connor's wise words to a patient he was good enough to help me with This was a typhoid fever patient who was in his third week He was suffering from a bad headache and was extremely restless Nothing helped, not even morphine. I asked Dr. Connor to see the patient, and he sat down at the patient's side The patient said to him "I feel terrible, terribly sick. This is the sickest I have ever been"

Dr. Connor said to him "I do not doubt that, but I think you are going to be a little sicker before you are well" The patient appreciated this frankness

I wonder what role the vitamins play in a fever of six to seven weeks' duration The patient eats little or nothing at all We are likely to be more concerned with fluids than with food. The patient may become irrational after a while and refuse everything by mouth. Under such conditions we now give some vitamin B₁, 300 or 600 units twice a day Today, that is the fashion, but I do not know how helpful it is I would like to hear that point discussed

DR. DUBOIS I wonder if the matter of rest is not so important as to deserve a special prescription written in the book that the patient is not to be touched or spoken to between such-and-such hours I certainly

wish it were that way We have an hour in the wards I wish we could have more than one hour during the day

DR. GUION With regard to what Dr. Tolstoi has said about the vitamins, I think the advantage of feeding these patients by a nasal tube is that you can give a balanced diet and you can give all the vitamins I frequently put a nasal tube down the nose of my pneumonia patients and begin soon to feed them all the calories I think they need and give them the proper proportion of the three food elements I always add to this the juice of vegetables, so that I get the minerals out of the vegetable juices and then pour down vitamins I do not know whether they need them or not but I know it does not do them any harm. You can keep a nasal tube down for a week or two weeks without any trouble If you pour some oil down the nose two or three times a day, the patients will not mind the tube They do not even know it is there It is a simple way to feed a sick patient who has no appetite

DR. TOLSTOI How important is food in the short illness of, say, two weeks? I know in typhoid fever the attempt is made to keep up the caloric balance All of us who have had fever know our appetite is gone, and we are grateful if we are just left alone.

DR. DUBOIS I doubt if it is important enough to plague the patient to death but there certainly should be moderate amounts of food I do not know how we could determine it except by controlled experiments on a large series of patients With the present fad of giving vitamins to everyone we should be able to see a change in the picture of the infectious diseases if the vitamins are really important I should not be surprised if it is found much easier to take care of the mouth when the proper parts of the vitamin B complex are given. I do not know It is an impression based on the experience in typhoid fever where the mouth condition cleared up with surprising rapidity when the patients were given a certain amount of food I do not think it was due to the calories but rather to the vitamins.

DR. WHEELER I have the impression, Dr. Guion, that you do not make as much effort to force fluids in patients with febrile diseases as we do in the hospital It seems to me in those cases one of our chief aims, rightly or wrongly, has been to get them to take in the ordinary amount of water

I looked over the charts of 10 of our patients with typhoid fever, all of whom ran

wines, vermouth being excellent to relieve anorexia I give 0.5 to 1 ounce of vermouth before meals or with meals, or I use a bitter wine of iron—an old preparation that is often effective

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Thirty-Fifth Annual Meetings of the District Branches of the Medical Society of the State of New York

PROGRAMS

First District Branch

Wednesday, October 8, 1941
Mount Sinai Hospital, 100th Street & Fifth Avenue
New York City

General Information

Place of Meeting—Mount Sinai Hospital
Physicians are requested to enter through the semiprivate pavilion on 1 East 100th Street, where registrars will distribute latest information regarding special clinics

Luncheon The hospital, through its director, Dr Joseph Turner, has invited the members attending the session to be its guests at luncheon, which will be served at 1 00 P M in the nurses' dining room

Business Meeting Will be conducted in the dining room during lunch hour—1 00 P M to 2 00 P M

Program Dr Reuben Ottenberg, chairman of the Hospital Committee on Medical Instruction, has enlisted the cooperation of the entire hospital staff to provide an all-day program covering the entire field of medicine except obstetrics

Map The engineering staff of the hospital has prepared a floor plan. Reference to this map will aid in locating the exhibits. In the listing the letters are used to designate the building the numbers, the floor

Appreciation To the members of the hospital staff who have cooperated in the presentation of the program

To Mr MacDonald of the engineering staff of the hospital for his cooperation in the preparation of floor plans, signs, and guide markings

To Miss Edith Levy, secretary for the Committee on Medical Instruction, for her kind assistance in gathering and arranging material

General Medicine

Ward Rounds

2 00- 3 00 Dr Bachr and staff F-5
2 00- 3 00 Dr Moschowitz and staff L-3

Round Table

11 00- 1 00 Endocrinology G-2
Drs Silver and Soffer

Case Presentations

D-3

9 00- 9 20 Insulin Resistance Dr C Spingarn
9 20- 9 40 Vitamin Deficiencies Dr M Ellenberg
9 40-10 00 Diabetic Coma Dr H Dolger
10 00-10 20 Bright's Disease Dr A. Fishberg
10 20-10 40 Jaundice Dr R Ottenberg
10 40-11 00 Diabetes Mellitus Dr H Pollack
11 00-11 20 Circulatory Dynamics Drs Hitzig—King
11 20-11 40 Cardiac Efficiency Dr H Jaffe
11 40-12 00 Cardiac Emergencies Dr A. Master
12 00-12 20 Electrocardiography Dr S Duck
12 20-12 40 Cardiac X-Rays Dr A Grishman

Hematology

G-3

2 00- 2 10 Sternal Puncture Dr N Rosenthal
2 10- 2 30 Pernicious Anemia Drs Abel—Tyson—Volterra
2 30- 2 40 Hodgkin's Disease Dr A Kean
2 40- 2 50 Osteosclerotic Anemia Dr F Bassen
2 50- 3 10 Sprue Drs Ortiz—Susman
3 10- 3 20 Hemolytic Anemia Dr L Wasserman
3 20- 3 30 Polycythemia Vera Dr D Stats
3 30- 3 40 Purpura Hemorrhagica Dr N Rosenthal
3 40- 3 50 Transfusion Reactions Dr P Vogel
3 50- 4 00 Epistaxis Dr S Peck

a temperature between 40 and 41 C for a week or longer, and during that period the average fluid intake was about 3,500 cc a day, with an extreme of 8,000 cc a day down to 1 who took only 1,000 cc a day. I wonder what your experience has been about the volume that is ordinarily required.

DR GUION I think it is just as important not to drown a patient as it is not to curtail his fluids. Patients are quite frequently drowned in their own intake. Certainly, Dr Helpern's experience on that point in autopsy work at Bellevue has shown that patients who have had large volumes of fluid have fluid in the abdomen and chest, and their tissues are definitely oversaturated.

I give my patients between 2,500 and 3,500 cc, and, except in diabetes, I rarely give patients more than 3,500 cc. It depends, as I said, on how much fluid they are losing. If a patient is breathing rapidly and I feel they are losing a lot of fluid in their breath and if they are sweating profusely, then I run up the amount to 4,000 or 4,500, but I never give anybody more than 4,500 cc of fluid. I do not think it is necessary. You look at the urine of the person getting 3,500 cc, and it is straw colored or water white and has a low specific gravity. This patient is satisfactorily hydrated. I do not see what you gain by running the fluid up so high above a normal intake.

DR DUBOIS If I remember rightly, about five years ago there appeared an article in the *Journal of the American Medical Association* entitled, "Water, Water Everywhere." It is a magnificent discussion of the fad about oversaturating our patients with water.

Summary

DR GOLD The following factors in the treatment of the seriously sick patient have

been elaborated in the discussion: the pathologic appraisal of the patient, his enlightenment concerning the nature and course of his disease, the choice of the nurse, the sick room, the behavior of the attendants, the bath, the care of the skin, the bed and the sheets, the care of the mouth and teeth, the throat, and hips, the control of cough, the fever blister, the control of nausea and vomiting, the type of diet, the variety of routes for feeding, the control of constipation, diarrhea, and distention, the fluid intake, the vitamins, the control of restlessness and insomnia. Few are the drugs required for the effective management of the seriously ill patient. A cathartic, a sedative, a mouth wash, a gargle, and a cough remedy practically complete the list.

As a result of the rapid progress in recent years in the discovery of specific cures for specific diseases, the doctor's interest in the disease has tended to eclipse his interest in the patient. The general management of the seriously sick patient stands in danger of neglect. Perhaps it is natural, for with the use of sulfonamides, by way of illustration, the course of a disease such as pneumonia has been so profoundly affected—its severity reduced, its duration curtailed—that often before one gets around to thinking of the patient his disease is over. There are many diseases, however, in which that is not yet the case, and it is refreshing to contemplate the detailed account of the many measures presented here which can be applied to the sick person, even in the absence of specific cures, which ease the burden of a serious and prolonged illness and preserve the natural body forces to combat the disease and insure recovery. It is a noteworthy aspect of this conference on treatment that in the center of interest stands not the disease but the patient.

MADE A DIFFERENCE

"Doctor," said the patient, "If there's anything the matter with me, don't frighten me to death by giving it a long scientific name, but just tell me what it is in plain English."

The doctor examined the man thoroughly and then said, "Well, to be quite frank, there's nothing the matter with you. I should say you were just lazy!"

The patient looked rather discomfited and said, "Now give me the scientific name for it—the longest name you've got. I've got to report to my employer."

—*Buffalo Courier Express*

SOME MORE SULFUROUS, TOO

A New York physician was giving an informal talk on physiology upon the windy, sea-fronting porch of an Atlantic City hotel.

"Also," he said, "It has lately been found that the human body contains sulfur."

"Sulfur!" exclaimed a girl in a blue and white blazer. "How much sulfur is there, then, in a girl's body?"

"Oh," said the physician smiling, "the amount varies."

"And is that," ask the girl, "why some of us make so much better matches than others?"

—*St. Louis Globe-Democrat*

4 Tumors of Middle Ear—Dr H Rosenwasser	B North Building
5 Facial Palsy—Dr E Snyder	B-3 Ward O
6 Audiometric Studies—Dr B Allen	B-4 Ward P
	B-5 North Building Roof
Dermatology—Syphilology	C Surgical Building
2 00- 4 00 Presentation of Cases—Dr Rosen and staff F-5	C-1 Attendings' Room—1st Floor
4 00- 5 00 Five-Day Treatment of Syphilis— Drs. Chargin and Leifer F-5	C-4 Ward T
	C-2 Ward Q
Special Demonstrations	E Medical Building
9 30-11 00 Neurosurgical Motion Pictures— Dr A. Kaplan D-2	E-1 Wards A-B
10 00-10 30 Pneumothorax—Dr H Hennell G-3	E-3 Ward E
10 00-12 00 Gastrosocopy—Dr Yarnis G-4	E-5 Ward K
Treatment of Cardiospasm—Dr A. Penner	F Outpatient Department
Drip Therapy for Gastric Ulcer— Dr Winkelstein	F-3 Gynecology-Endocrine
Biliary Drainage—Dr A. Cornell	F-5 Skin Clinic
12 00- 1 00 Gastroenterology—Drs Crohn and Winkelstein D-3	Rooms A-B-C-D
10 00-11 00 Proctologic Demonstration—Dr S Manheim F-2	J Children's Pavilion
12 00- 1 00 Peripheral Vascular Disease—Dr S Silbert D-3	J Base Child Health Class
3 00- 4 00 Vascular Allergy—Dr J Harkavy J Basement	J Base Dietetic Classroom
9 00-10 00 Electroencephalography—Drs Strauss and Wechsler B-5	P Blumenthal Auditorium
9 00-10 00 Brain Tumors—Dr J Globus H-3	Q Nurses' Home—Dining Room
11 00-12 00 Pneumoencephalography—Dr M Sussman L	D Administration Building
11 00- 1 00 } Advances in X-Ray Diagnosis— 2 00- 4 00 } Dr M Sussman and staff L	D-1 Information Desk
10 30-12 30 Radiotherapy—Dr W Harris and staff D-2	D-2 Second Floor
Physiotherapy—Dr W Bierman and staff D-4	Hall Outside Board Room
10 00-12 00 Physically Induced Fever—Dr Bierman	Committee Room A
2 00- 4 00 Advances in Physiotherapy—By the staff	Committee Room 13
All Day Exhibits	Ladies' Auxiliary
1 Regional Nerve Block—Dr W Branower D-2	Board Room
2 Gynecologic Endocrine, Diagnostic Methods —Dr S Geist D-2	D-3 Lecture Rooms 3 A-B-C
	Lecture Rooms 4-5
	D-4 Physiotherapy Department
	D-5 Cystoscopy Room
	D-5 Nose and Throat O R.
	D-6 Clinical Amphitheatre
	G Outpatient Department Annex
	G-2 Classroom
	G-3 Hematology Clinic
	G-3 Chest Clinic
	G-4 Gastrointestinal Clinic
	H Laboratory Annex
	H-3 Neuropathologic Laboratory
	I Private Pavilion
	I-7 Eye O R.
	L X-Ray Department
	L Base Museum
	M Autopsy Room

ROOM KEY

- A Semiprivate Pavilion
A-1 Entrance
A-9 Operating Room
A-8 Operating Room

*{The programs for the Second, Third, and Fourth
District Branches will appear in a later issue}*

Fifth District Branch

Tuesday, September 23, 1941
Hotel Syracuse, Syracuse, New York

Morning Session (9 30 Daylight Saving Time)

"The Use of Steel Wire Sutures in General Sur-
gery" (Motion Picture)

H Dan Vickers, M D, Little Falls,
N Y
Joseph W Conrad, M D, Little Falls,
N Y

Blood Bank Demonstration		E-1	
4 00- 5 00	Dr N Rosenthal		lapse, <i>et al</i> —Dr Geist and staff A 9
Clinicopathologic Conference		P-1	9 15-10 35 Case Presentations including Advances in Gynecologic Endocrine Therapy—Dr Geist and staff D-3
4 00- 5 00	Drs Klemperer and Baehr		2 00- 5 00 Demonstration of Intrauterine Lesions Using Iodized Solutions and X-Ray—Dr Rubin and staff D-2
General Surgery			4 00- 4 30 Motion Picture (Dr Geist) Basement J
Operations			10 00-11 30 Demonstration—Technic of Vaginal Smears, etc (Dr Geist service) F-3
9 00-10 30	Gastrectomy—Dr Ralph Colp	D-6	
10 30-12 00	Colonic Surgery—Dr J Garlock	D-6	
Discussion of cases by Drs Crohn and Winkelstein			
Ward Rounds			Thoracic Diseases
9 00-10 30	Dr J Garlock and staff		2 00- 3 30 Operations—Dr H Neuhoef and staff D-6
	Surgical wards	Q-T	3 30- 5 00 Case Presentations D-3
10 00-11 30	Dr Ralph Colp and staff		1 The Suppurative Pneumonias
	Surgical ward	R	2 Lung Abscess
Round Table			Pediatrics
11 30- 1 00	Dr Ralph Colp and staff		9 30-11 00 Ward Rounds—Dr Schick and staff J Basement
	Board room	D-2	
	Gastroduodenal Ulceration—Surgical Treatment		Clinical Presentations
2 00- 3 30	Dr John Garlock and staff	D-3	11 00-12 00 Dyslexia Dr I. Wile
	1 Regional Ileitis—Dr Ginzburg		Erythroblastosis Foetalis Dr P Vogel
	2 Carcinoma of Esophagus—Dr Garlock		2 00- 2 15 Bronchiectasis Dr G Gindandes
Orthopedics			2 15- 2 30 Jaundice Dr S Weiner
9 00-10 30	Operations—Drs Selig and Lippman and staff	A-9	2 30- 2 45 Obesity Dr A. Topper
10 30-12 00	Clinical Demonstrations		2 45- 3 05 Diabetes Dr A. Fischer
	Room A	D-2	3 05- 3 30 Acute Rheumatic Carditis Dr M Bass
Neurology—Neurosurgery			3 30- 3 40 Ambulatory Rheumatic Child Dr I Roth
9 00-12 00	Operations—Drs Ira Cohen and S W Gross	A-8	3 40- 4 00 Allergy Dr M Peshkin
12 00- 1 00	Neuroses—Dr L. Kubie	B-5	4 00- 4 15 Cyclic Vomiting Dr S Blumenthal
2 00- 2 30	Cortical Syndrome—Dr R. Brickner	B-5	4 15- 4 35 Hypertension Dr J Kohn
2 30- 3 30	Nutritional Deficiencies—Drs Wechsler and Pollock	B-5	4 35- 5 00 Epidemic Diarrhea in the New-born Dr S Karels
2 00- 3 00	Demonstration—Drs Bender and Weinstein	H-3	
Ward Rounds			Ophthalmology
10 00-11 00	Dr I Wechsler and staff	B-3 B-4	2 00- 5 00 Operations—Drs Schlveik, Minsky, and Lambert I-7
2 00- 2 45	Dr Ira Cohen and staff	B-4	
2 45- 3 45	Case Presentations by staff	D-2	Laryngology
Genitourinary			2 00- 5 00 Operations—Dr Kramer and staff D-5
3 30- 5 00	Operations—Dr A. Hyman and staff	D-6	2 00- 5 00 Case Presentations, including D-3
9 30-11 00	Cystoscopic Clinic	D-5	1 Maxillary Sinusitis in Children—Dr M. Bender
9 30-11 00	Case Presentations, including	D-3	2 Nasal Sinusitis and Allergy—Dr J Goldman
	1 Total Cystectomy		3 Correction of Nasal Deformities—Dr I Goldman
	2 Obstruction Due to Sulfapyridine		
	3 Abscess of Kidney		Otology
Gynecology			10 00-12 00 Case Reports and Presentations—Dr Maybaum and staff J Basement
9 00-12 00	Operations—Abdominal Salpingolysis for Obstruction, <i>et al</i> —Dr Rubin and staff	A-9	1 Otitic Infections Masked by Chemotherapy—Dr Maybaum
1 45- 4 00	Parametrial Fixation for Pro-		2 Lateral Sinus Thrombosis—Dr S Rosen
			3 Intracranial Complications—Dr I Druss

Walter M Boothby, M D, Rochester, Minn., *professor of experimental metabolism, the Mayo Foundation, and Director of the Laboratory for Research in Aviation Medicine*

Norman H Jolliffe, M D, New York City, *associate professor of medicine, New York University College of Medicine*

"Clinical Applications of Recent Advances in Nutrition"

Ladies will be entertained at luncheon at the Cooperstown Country Club

Seventh District Branch

Thursday, September 25, 1941
Oak Hill Country Club
Rochester, N Y

The Oak Hill Country Club is located on Route N Y 2, between Pittsford and Rochester and is easily reached from all points of the District. In approaching Rochester from the east and south, drive on north through Pittsford. The club entrance is on the west side of the road and has its name in large letters at the gate. It is within one-half mile of the left turn toward Rochester, known as the East Avenue Road. The clubhouse is some distance back from the entrance gate and ample parking space is provided.

Morning Session (Daylight Saving Time)

9 30 Registration at Oak Hill Country Club

10 00 Motion sound pictures, under the direction of Benjamin J Slater, M D, Rochester, N Y

"More Trifles of Importance"

"XXX Medico"

"The Hidden Master"

"A Way in the Wilderness"

Metro-Goldwyn-Mayer pictures recently released. These pictures have been selected for their inspirational and historical value in regard to advances in medicine and surgery.

11 00 "Plasma Proteins and Clinical Problems"
George Hoyt Whipple, M D, *dean and professor of pathology, University of Rochester School of Medicine, Rochester, N Y, with associates—Drs S C Madden, E B Mahoney, and J W Howland*

A great deal of work is being done in the Rochester School of Medicine relating to plasma proteins, and this group is particularly able to give information on this subject which is, at the present time, of tremendous interest in civil and military surgery.

12 00 "The Diagnosis and Treatment of Lesions of the Cranial Nerves"
Walter E. Dandy, M D, *adj professor of neurosurgery, Johns Hopkins University School of Medicine, Baltimore, Maryland*

This address contains the results of much research and experience during the past decade and is concerned with trigeminal neuralgia, glossopharyngeal neuralgia, Ménière's disease, carcinoma of the tongue and spastic torticollis, also tumors and aneurysms affecting the cranial nerves.

Discussion William P Van Wagenen, M D
Henry Ward Williams, M D
Rochester, N Y

1 15 P.M. Luncheon and Introduction of Guests

2 00 Business Meeting—Election of Officers

Afternoon Session—Forum on Medicine and Surgery

The afternoon session will be devoted to a forum which will be composed of four panel discussions as follows, beginning at 2 15 P.M. Members may select the group which they prefer to attend, designated by colored cards obtainable at the registration desk.

1 "Health and Disease in Infancy and Childhood"

The subjects discussed will be those which have a practical value and are problems in which many members of the Society are interested.

"Treatment of Convulsive Disorders in Infants and Children"

"Diagnosis and Treatment of Whooping Cough"

"Vitamin and Mineral Needs of Infants"

"Rational Procedures in Eczema and Allergic Disorders"

"Tuberculosis Control in Children"

"Diagnosis and Management of Rheumatic Infection"

Conductor Albert D Kaiser, M D

Assistants John Aikman, M D, Paul W Beaven, M D, William L Bridford, M D, Samuel W Clausen, M D, and Jerome Glaser, M D

2 "Modern Drug Therapy"

Under this heading, not only the therapy of the sulfonamide group is brought up to date, but a discussion of vitamin therapy will be taken up.

Conductor James H Sterner, M D

Assistants Stanley H Elenback, M D, Thomas Kilip, M D, John S Lawrence, M D, C Stewart Nash, M D, Henry C Shaw, M D, Leo F Simpson, M D, and Karl M Wilson, M D

This picture covers work done by these physicians in the Little Falls Hospital over a period of three years

"Blood Stream Infection of the Cortex of the Kidney"

Leo E. Gibson, M D, Syracuse, *associate professor of urology, Syracuse University College of Medicine*

Description of the mode of infection and the pathology involved. Discussion of the different types with the signs and symptoms referable to each. The importance of a careful history as the most important aid in the diagnosis is stressed. Cases exhibiting the interesting vagaries of the disease will be presented with the aid of lantern slides.

"Facilities, Personnel and Waters as Presented for Treatment at the Saratoga Spa"

Walter S. McClellan, M D, Saratoga Springs, N Y, *medical director, Saratoga Spa*

"New Concepts of the Etiology of Cancer"

William H. Wehr, M D, Buffalo, *surgeon, State Institute for the Study of Malignant Disease*

Discussion of various types of cancer with the accepted forms of therapy and the end results of treatment.

Luncheon and Introduction of Guests

Afternoon Session (2 00 P M)

Business Meeting—Election of Officers

"Chronic Arthritis from the Standpoint of the Practicing Physician"

Howard K. Thompson, M D, Boston, *asst professor of medicine, Tufts Medical School, head of Arthritis Clinic, Boston City Hospital, Robert Breck Brigham Hospital*

What is meant by orthodox or conventional treatment?

What is the latest theory as to the cause?

What about vaccine? And the rumour about gold salts, diet, and proteins?

Is there any campaign a family physician can carry out without elaborate equipment and hospitalization?

"Blood Studies in Shock as a Guide to Therapy" (Illustrated by slides and motion pictures)

John Scudder, M D, New York City, *instructor in surgery, College of Physicians and Surgeons, Columbia University*

There are certain tests, which can be readily mastered, of more value than blood pressure determination in the anticipation of shock. These tests measure loss of fluid from the blood. In following a case of shock, the sensitivity of these tests can differentiate between shock due to trauma or dehydration and shock due to hemorrhage. Thus, internal hemorrhage can be detected before fall in blood pressure or before clinical manifestations of blood loss.

"The Modern Care of Civilian and Military Casualties Under Warfare"

Charles Bove, M D, New York City, *surgeon in charge of a general hospital in Paris at the time of the invasion of Paris*

A description of the medical setup under present warfare conditions.

Entertainment for Ladies

The ladies will join with the members of the District Branch for luncheon and in the afternoon will be entertained by the Onondaga County Auxiliary.

Sixth District Branch

Thursday, September 18, 1941
The Mary Imogene Bassett Hospital
Cooperstown, New York

Morning Session (10 00 A M Daylight Saving Time)

"The Medical Examiner and the Coroner—Is New Legislation Needed?"

Gilbert Dalldorf, M D, Valhalla, *director, Division of Laboratories, Grasslands Hospital*

"Diagnosis and Rationale in Treatment of Carcinoma of the Breast"

Hugh Auchincloss, M D, New York City, *professor of clinical surgery, College of Physicians and Surgeons, Columbia University*

"Involutional Melancholia"

Edward A. Strecker, M D, Philadel-

phia, *professor of psychiatry, University of Pennsylvania School of Medicine*

Luncheon and Introduction of Guests

Afternoon Session (2 15 P M)

Business Meeting—Election of Officers

"Management of the Patient with Cardiac Pain"

Robert L. Levy, M D, New York City, *professor of clinical medicine, College of Physicians and Surgeons, Columbia University*

"The Physiology of High Altitude Flying" (Motion Pictures)



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3. "The Gastrointestinal Tract from Medical and Surgical Points of View"
- Some of the topics that will be covered are
- "Diagnosis of Gastritis Made with a Gastro-scope"
 - "The Comparative Merit of X-Ray and Gastroscopy in the Diagnosis of Diseases of the Stomach"
 - "Mechanical Laxatives"
 - "Congenital Lesions"
 - "Psychic Basis and Treatment of Certain Gastrointestinal Symptoms"
 - "X-Ray Investigation of the Duodenum"
- Conductor W J Merle Scott, M D
- Assistants Lyman C Boynton, M D, Sol C Davidson, M D, Thomas B Jones, M D, Labby Pulsifer, M D, George H

- Ramsey, M D, Harry L. Segal, M.D, and Ellis B. Soble, M D
4. "The Puerperal Period and Its Complications"
- This discussion will cover the following
- "The Use of Sulfanilamide"
 - "Blood Transfusion"
 - "Puerperal Morbidity Due to Extra-Pelvic Conditions"
 - "Puerperal Hemorrhages Early and Late"
 - "Conditions Found at the Postnatal Examination at Six Weeks"
- Conductor James K. Quigley, M.D
- Assistants Ward L. Ekas, M D, Shirley R. Snow, Jr, M D, Joseph B. Loder, M.D, James W. Thomson, M D, and M. Edgerton Deuel, M D

{The program for the Eighth District Branch will appear in a later issue }

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Edward J Ballou	55	Cornell	July 30	Buffalo
Frank J Bevan	65	L I C Hospital	August 11	Forest Hills
Giuseepe Bonaccollo	76	Palermo	July 30	Brooklyn
William LeF Case	71	Cleveland	July 4	Manhattan
Ralph E Clogher	56	Pennsylvania	July 10	Utica
Olin E Farley	49	McGill	August 5	Manhattan
Edward Frankel, Jr	69	P & S N Y	July 5	Manhattan
Frank M Gipple	88	Buffalo	July 29	Williamsville
Robert Goldberg	52	Univ & Bell	June 13	Bronx
James P Gould	67	Buffalo	May 20	Manhattan
Mozart Monae-Lesser	62	P & S N Y	August 8	Manhattan
Frank J Monaghan	75	L I C Hospital	July 26	Oneonta
Elmer H Ormsby	51	Albany	July 17	Amsterdam
William J Prish	80	Hahne Phila	July 18	Fredonia
Willis H Van Der Wart	56	Univ & Bell	July 16	Schenectady

RETURN YOUR INFORMATION CARD FOR THE A.M.A. DIRECTORY PROMPTLY

About September 1, an information card will be sent from the headquarters office of the American Medical Association to every physician in the United States and Canada. The information secured is to be used in compiling the Seventeenth Edition of the *American Medical Directory*.

The directory is prepared at regular intervals in the Biographical Department of the American Medical Association. The last previous edition appeared in 1940. This volume is one of the most important contributions of the American Medical Association to the work of the medical profession in the United States, it has been especially valuable in the medical preparedness program. In it, as in no other published directory, are dependable data concerning physicians, hospitals, medical organizations, and activities. The directory provides full information concerning medical colleges, specialization in the field of

medical practice, memberships in special medical societies, tabulations of medical journals and medical libraries and, indeed, practically every important fact concerning the medical profession in which any one might possibly be interested.

Before filling out the information card, read the instructions carefully. Physicians are especially urged to state whether or not they are on extended active duty for the Medical Reserve Corps of the United States Army and Navy.

Fill out the card and return it promptly whether or not a change has occurred in any points on which information is requested. If a change of address occurs before March 1, 1942, report it at once. Should you fail to receive a card before the first of October, write at once to the headquarters office stating that fact and a duplicate card will be mailed.

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OWEGO, TIOGA CO., N. Y.

WHEEL CHAIR ERAS

With the Census Bureau reporting that Americans may
look forward to a longer stay on earth, it is apparent that
the problems of old age are to be multiplied, especially
where infirmities are evident

Old age pensions and other forms of legislation for
later-life security have their limitations and cannot pro-
vide the actual care required or the absolute rest and
peacefulness that veterans of life have earned. In dis-
cussing the subject of longevity, the *American Profes-
sional Pharmacist* of July states that the number of per-
sons over 65 has increased three million within the last
ten years and predicts the approaching need of "more
wheel chairs and less baby powder"

The A P P recognizes that the medical profession has
partially solved the challenge of an increased span of
life, but in doing so our medical scientists have created
new problems such as finding markets for certain mer-
chandise, old age pensions and security, and a change in
the balance in national customs and social laws

But the job of the medical profession primarily is to
save lives and to preserve life, although in rehabilitating
patients it often solves their economic problems as well,
and in many respects the medical profession has already
provided for the care of the aged If we must think of a
'ripe old age' as a wheel chair era then we must con-

sider old age as much a medical problem as a social one

True, many old folks are invalids actually or figura-
tively and require special facilities for their welfare
and special nursing care The wants of those on in
years are generally few and simple For the most part,
they want quiet, some physical comforts and some one to
pay them a little attention and a little of the respect
their seniority rates

Not all are fortunate in having really devoted relatives
who never begrudge the burdens of constantly attending
an aged member of the family Some, even with such
devoted offsprings, cannot be adequately cared for in the
average American home

So we have the sanitarium and the nursing home spe-
cializing in the care of elderly people, attractive places
with pleasant environments and so well equipped for
the comfort of the aged and able to provide the special
diets and nursing so necessary in making their declining
years easier and less pain-ridden

If the sanitariums and nursing homes performed no
other service, the one humanitarian role of devotion to
the care of those who have reached the "arm chair era"
would alone be sufficient to make their place in health
work worthy of full recognition

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Medical Preparedness

Civilian Defense

From the Office of Civilian Defense in Washington, D C, comes information of certain new appointments

A Medical Advisory Board has been appointed by the United States Director of Civilian Defense to assist the Medical Division of the Office of Civilian Defense The following is the personnel

Dr George Baehr, New York City, *Chairman*
Dr Robin C Buerki, Madison, Wisconsin
Dr Elliott Cutler, Boston
Dr Oliver Kiel, Wichita Falls, Texas
Dr Albert McCown, Washington, D C
Dr Fred Rankin, Lexington, Kentucky

Dr H Van Zile Hyde, senior surgeon, United States Public Health Service, has been assigned as Medical Officer in the Office of Civilian Defense for the Second Defense Area located at 111 Eighth Avenue, New York City Dr Hyde will be available for advice and consultation in the development of plans for the establishment of "Emergency Medical Services," as provided in *Bulletin No 1*, Medical Division, United States Office of Civilian Defense, which is about to be issued and distributed.

Volunteer Nurses' Aides

The United States Director of Civilian Defense, Mayor F H LaGuardia, announces the training of 100,000 Volunteer Nurses' Aides during the next twelve months, in collaboration with the American National Red Cross and the major hospitals of the country The program is in preparation for a great expansion in hospital beds which may be required during the National Emergency, at a time when the already overburdened nursing facilities of civilian hospitals are seriously depleted due to the demands of our military and naval establishments and the increasing needs of public health and industrial hygiene services

The growing deficiency in hospital personnel is now being met in part through the training of large numbers of paid subsidiary hospital workers by the NYA, WPA, and other agencies The training program for Volunteer Nurses' Aides is designed to expand the effectiveness of the trained nurse in hospitals, clinics, and field nursing services by supplying her with intelligent assistants who can work under her direction

The curriculum of instruction has been prepared by the Medical Division of the Office of Civilian Defense, the American National Red Cross, and the Federal Security Agency Eligibility is limited to women between the ages of 18 and 50 who have had at least a high-school educa-

tion or its equivalent and who are physically fit The course will provide eighty hours of intensive instruction in a period of seven weeks The first half of the course will be given in the local Red Cross chapter house in collaboration with local hospitals and nursing organizations This will constitute the probationary period and will require two hours of instruction daily on five days a week for four weeks

The second half of the course will consist of supervised practice in a hospital which has been designated by the Office of Civilian Defense and the Red Cross as a Training Center The American National Red Cross will assist the hospital to provide competent instructors and nursing supervisors

Those who complete the course will be enrolled in the Volunteer Nurses' Aide Corps of the American Red Cross with the assurance that they will play an important role in Civilian Defense They will retain their membership in the Corps only as long as they continue to render adequate service during the period of the National Emergency This is defined as 150 hours of volunteer service in a hospital, clinic, or field nursing organization in at least one three-month period in each calendar year

The Office of Civilian Defense and the American National Red Cross will provide for this continuing service by arrangement with local hospitals and field nursing agencies For this purpose the Red Cross will maintain a Placement Bureau, which will allocate Volunteer Nurses' Aides to the following types of nursing service hospitals and clinics, visiting nurse (home visiting) agencies, health departments, school health services, and industrial hygiene clinics

By serving in this manner as assistants to qualified nurses, their training will be continued In the event of sudden emergencies during a period of national crisis, they will then be immediately available for reassignment to hospital or field duty by the Office of Civilian Defense There will be opportunity for some to serve as members of the Mobile Medical Field Units which are being organized in hospitals along both seaboard and in industrial centers in the interior, according to plans announced this week by the United States Office of Civilian Defense

Volunteer Nurses' Aides will wear the uniforms and insignia of Civilian Defense The new insignia for Nurses' Aides will be a red cross within the triangle and circle of the OCD, indicating that the Aide was enrolled and trained by the Red Cross to service in Civilian Defense

Applicants may enroll at the Red Cross chapter house and the course will begin in each locality as hospital arrangements are completed

THE LATEST WRINKLE

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ten days in the hospital, and a medical dictionary so you can hold your own at bridge games"

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"TRAVEL MEDICINE"

CANADA, always a colorful vacation retreat—summer or winter—is even more so now in its warlike, though peaceful, setting.

In nearly every Province the country to our north offers a pageant of war personalities. Ottawa is a city of picturesque contrast, presenting the aspects of a boom town through its new war buildings and war population. A step from the United States Embassy are street scenes of multicolored uniforms where soldiers of Poland, Belgium, Holland and Norway mingle with comrades wearing the dark blue of the Royal Canadian Navy, the light blue of Aviation and the khaki and blue from all points of the British Empire.

Coupled with the diplomatic and military life of the capital are the Royal exiles and families of Netherlands and the grand duchy of Luxembourg. Canada with its 66 training schools is the hub of the Empire's air forces and vacationists soon become acquainted with the uniforms from far away lands seen everywhere. The Dominion air schools now draw recruits from New Zealand, Australia and the most remote of British possessions. In addition to American volunteers in training are students from Mexico, Peru and Argentina. Outside Toronto is "Little Norway" where the Royal Norwegian flyers are forming a unit for Canada's fighting.

(Continued on page 1791)

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Literature on Request

ESTABLISHED 1889

THEODORE W. NEUMANN, M.D., Phys. in-Chg.
CENTRAL VALLEY, Orange County, N. Y.

Medical News

County News

Erle County

Eighty-seven members and friends of the Academy gathered at the Orchard Park Golf Club on July 10 for the Annual Field Day of the Buffalo Academy of Medicine. Golf, bridge, and much conversation preceded the annual "victory" dinner, at which all manner of awards and prizes made their appearance.

The new officers of the Buffalo Otolaryngological Society for the next year are: president, Dr Morris E Newman, vice-president, Dr Leon H Smith, secretary, Dr Joseph G Krystaf, and treasurer, Dr Joseph C Scario.

As a part of the National Defense Program, Buffalo has been called upon to establish a collection center and volunteer donor bureau to collect blood for transfusion purposes. Buffalo is the fourth city in the United States in which the American Red Cross has established such a center under the supervision of the National Research Council, says the *Bulletin* of the county society.

Dr Paul W Searles of the Buffalo General Hospital has been appointed chairman of the local Blood Procurement Service, and the collection center has been established at the General Hospital through the courtesy of Dr Fraser D Mooney, superintendent. Dr David K Miller of the Edward J Meyer Memorial Hospital has been selected by the National Research Council as their representative to supervise the local project. Dr E Hoyt DeKleine has been named by Dr Searles as vice-chairman of the Blood Procurement Service.

Collections of blood are made daily, and after refrigeration the whole blood is shipped immediately to laboratories in Philadelphia, where the plasma is processed for storage in the dry state.

The quota for Erie County calls for fifty donors per day and the task of enrolling such large numbers is a tremendous project, requiring the assistance of all who can devote their time to the work. There is only a limited budget for campaign purposes.

One of the chief hurdles to overcome is the public's fear of transfusions which arises from the heroic values assigned to transfusions in the not too distant past.

The medical profession can be of invaluable assistance by volunteering themselves as donors early in the campaign. In addition, they should disseminate the real facts about transfusions, the care with which this work is now performed, the physical checks made beforehand, and the function of the National Research Council in its advisory and supervising capacity.

By carefully and sincerely presenting this project to the public, we can be of great help in furthering this program and thereby serve our country in a national cause.

Physicians should contact the American Red Cross or the office of the Medical Society of the County of Erie and obtain a supply of donor

enrollment blanks and other information, in order that they may be informed when asked about the Blood Procurement Service. The Buffalo Blood Procurement Service (American Red Cross) telephone number is CI 1182.

The Medical Society of the County of Erie strongly urges its members to cooperate to the fullest extent in this undertaking, and it is hoped they will inform their patients of its importance in the National Defense Program.

Jefferson County

Dr Harold L Gokey, Alexandria Bay, former president of the county medical society, was elected chairman of the County Health Preparedness Committee at the organization meeting held in the supervisors' room of the county building on August 6.

Kings County

The Friday afternoon lectures, held at 4 30-5 30 P M in the MacNaughton Auditorium, are announced as follows for October and November.

October 3—"The Present Concept of Colitis and Its Management"—Dr Burrill B Crohn, New York City.

October 10—"Hernia"—Dr Alfred H Iason, Brooklyn.

October 17—"The Approach to Differential Diagnosis of Medical Conditions"—Dr George A Sheehan, Brooklyn.

October 24—"Recent Concepts of Rickettsial Diseases: Endemic Typhus (Brill's Disease), Its Diagnosis and Frequency"—Dr Simon R Blatteis, Brooklyn.

October 31—"Recent Advances in Digitalis Therapy with Particular Attention to the Use of Pure Glycosides"—Dr Arthur C DeGraff, New York City.

November 7—"Migraine and Epilepsy"—Dr Leo M Davidoff, Brooklyn.

November 14—"Evaluation of Drug Therapy in Heart Disease"—Dr Harry Gold, New York City.

November 21—No Lecture—(Thanksgiving Holiday).

November 28—"A Consideration of Essential Hypertension as a Metabolic Disease"—Dr Homer Smith, New York City.

The Round-Table Conferences on Mondays at 4 30 P.M. in the MacNaughton Auditorium are announced as follows for October 6 to December 1.

October 6—"Problems in the Management of the Diabetic Patient"—Dr George E Anderson and Dr Edmund L Shlevin, Brooklyn.

October 13—No Lecture—Holiday (Columbus Day).

October 20—"The Medical and Surgical Management of the Tuberculous Patient"—Dr Charles E Hamilton and Dr Edwin J Grace, Brooklyn.

[Continued on page 1790]



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Associate

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* * *

TRAVEL SOUTH, during the summer now almost at an end, increased considerably, due largely to the fact that people are learning that temperature and geography are not twins. They are beginning to understand that temperatures at southern seashores, even in the tropics, are often lower than those in our northern states, particularly inland states

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[Continued from page 1788]

October 27—"The Management of Common Orthopedic Problems"—Dr Joseph B L'Episcopo and Dr Herbert C Fett, Brooklyn.

November 3—"The Management of Peripheral Vascular Diseases"—Dr Irving S Wright, New York City, and Dr Jacob W Kahn, Brooklyn.

November 10—"The Diagnosis and Management of Arthritis"—Dr Martin Henry Dawson, New York City, and Dr Abraham S Gordon, Brooklyn.

November 17—"Surgical Diseases of the Abdomen When to Operate"—Dr Robert F Barber and Dr Louis Berger, Brooklyn.

November 24—"The Management of Endocrinological Problems"—Dr Ephraim Shorr and Dr Charles S Byron, Brooklyn.

December 1—"The Diagnosis and Management of Disorders of the Blood"—Dr Eugene R Marzullo and Dr Maurice Morrison, Brooklyn.

Questions should be submitted to Dr Harry Mandelbaum, chairman, Clinical Committee.

New York County

While other factors contribute to stillbirths and infant deaths within the first ten days of life, prematurity remains the most important single cause of mortality in this group, notes the New York *Medical Week*, and it adds that the Special Committee on Infant Mortality of the Medical Society of the County of New York has therefore emphasized the study of prematurity in the past year. It has investigated all phases of the subject, including pathology, the pediatric care of the premature, obstetric factors tending to prevent premature births, and various public health considerations. It will continue to devote special attention to this question until prematurity has been eliminated as an important cause of infant deaths.

Altogether, however, infant mortality is one of the bright spots in the annals of medical practice and public health. In the past twenty years it has declined 45 per cent throughout the nation. Moreover, the drop has been a progressive one and shows no sign of slackening. If the present local rate for 1941 continues, this year will close with the lowest rate in the history of New York City.

Naturally, the county society does not attribute this progress solely or even chiefly to the activities of its Special Committee. In its efforts the latter has had the assistance of the Department of Health, the Maternity Center, and many individual physicians. There is no doubt, however, that this collaboration has proved mutually beneficial, and the Committee's work "may properly be considered" as having contributed to the noteworthy gains that have

been achieved and are in the process of making.

Dr Kirby Dwight's yacht "Flyaway" came in second in the Eastern Long Island handicap class race, staged as the choice event in the Eastern Long Island Racing Regatta which was held during this season.

Queens County

The Graduate Education Committee propose to initiate courses in Fractures and General Medicine for this fall or winter. Will members of the society who are interested in these courses please signify their interest by communicating with the Chairman of the Committee through the society's office.

A tentative program has been drawn up for a course in allergy to be given for the society in October. Arrangements are being completed through the chairman of the State Society's Committee on Public Health and Education. It is requested that those interested communicate with the chairman of our Graduate Education Committee. Attendance will be gratis.

St Lawrence County

The county society met in Ogdensburg on August 7 and, after a luncheon at the country club, enjoyed a program of bridge and golf.

Westchester County

The handling of emergency cases and first-aid cases in Peekskill can best be taken care of by "your own doctor," declared Dr Robert Koop in a brief statement issued on July 30 on behalf of the Peekskill Medical Board.

The statement follows:

"The Medical Board agreed that the prompt, efficient care in an emergency can be assured only by your own doctor.

"In an emergency call him. If unavailable, his office will secure another physician for you."

The statement came as a result of a discussion among the doctors on the recent flare-up on the handling of emergency cases. Attention on this matter was focused by the Peekskill Lions Club following the drowning of a boy in the pool at Indian Point Park, when there was considerable delay in securing the services of a doctor.

The matter was recently discussed at a special meeting of the Medical Board of the Peekskill Hospital, and it was announced that a statement would be forthcoming shortly.

A spokesman for the group said he believed that the "plan," which had "always worked out satisfactorily in the past," would "work out well in the future."

VITAMINS GOING WILD

The public is warned in an editorial in the *New York Medical Week* that "unscrupulous salesmen of certain vitamin preparations" are canvassing housewives and making "the false assertion that they are making a survey for the Department of Health." The editorial points out that the department does not sponsor commercial sales and that it is not conducting a

survey relating to vitamin products. The editorial continues:

"The unsupervised sale of vitamin preparations has reached serious proportions even without this angle. Desirable is the addition of specific vitamins to deficient diets, there are grave dangers inherent in the indiscriminate use of vitamin concentrates."

NEW YORK STATE JOURNAL OF MEDICINE

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Editorial

We See by the Papers . . .

It is always a healthy thing to look about a little to see what others are doing and to ascertain what they are thinking about. Thus, we find in the *Bulletin of the Medical Society of the County of Westchester* for September, 1941, page 5, the following pertinent comment on the function of a medical society

It is wholly proper that any institution should occasionally have to set down in black and white, and publish for the world to see, its own reasons for being. The time has long past, if indeed it ever was, when individual physicians and their scientific societies could exist in a sort of economic vacuum untouched by the pressing social and economic issues of the day, untroubled by the problems incident to the helter-skelter mushrooming growth of the industrial and commercial civilization of our times. The spreading web of economic and social interdependence has now so thoroughly enveloped and entangled the institution of medicine that the medical society has perforce taken on many of the responsibilities of a trade guild. Paradoxically, if the medical society at this late hour were to return to its previous happy existence as an organization devoted solely to the development of the medical art, such an abdication of our responsibility in the social and economic spheres would immediately invite the encroachment of unsympathetic social forces to the extent that the professional independence and standards of the physician would ultimately be obliterated, and the integrity of medical art imperiled, if not destroyed.

So it is that we have taken on these new responsibilities and fulfilled these new functions, not possibly through any deliberate choice of our own, but because of an obvious compulsion to buttress and safeguard the scientific standards which once were our sole concern.

Concerning a medical society's public relations, the *Bulletin* has this to say

It has ever been our avowed and consistent theory that the true interests of the medical pro-

fession and of the public exactly coincide, and the converse of this proposition has been none the less dominant in our thinking—that the genuine public interest is and must continue to be the primary interest of the medical profession. Endowed with this enlightened philosophy, we have been able to carry on all our activities in full view of the public and we have welcomed, indeed sought, the assistance of the press and other media of public information in presenting our policies and viewpoints to the public.

The services which the medical society perform for the community are in essence the public relations policy of the society. These services earn for the society its truest and most important assets—namely, public esteem—public confidence in, and appreciation of, the aims and purposes of the medical organization. In the creation of such assets every physician in his own practice has a vitally necessary part to play. Every time a doctor visits a patient the public esteem of the medical profession is at stake. A thoughtless act on the part of the physician, an act of negligence or of inconsideration, the imposition of a fee that may reasonably be considered unreasonable, a crass word of disparagement passed upon another colleague, or simply a failure to do all for a patient that he feels should have been done for him—these or many other seemingly unimportant acts of commission or of omission may hurt the public relations of the medical profession far more seriously than we may realize.

A true public relations policy, like charity, begins at home.

The *A M A News* for August 14, 1941, calls attention to the rat as a disease carrier.

The growing health menace of the rat is pointed out in *Hygeia, The Health Magazine* for September by James Nevin Miller, Washington, D. C., who warns that "During the past four years rat-bite fever, also known as murine fever, has been spreading northward and inland from its former stronghold on the Gulf and southeastern coasts. This year it has invaded Washington, D. C., and while only 2 cases have been reported thus far,

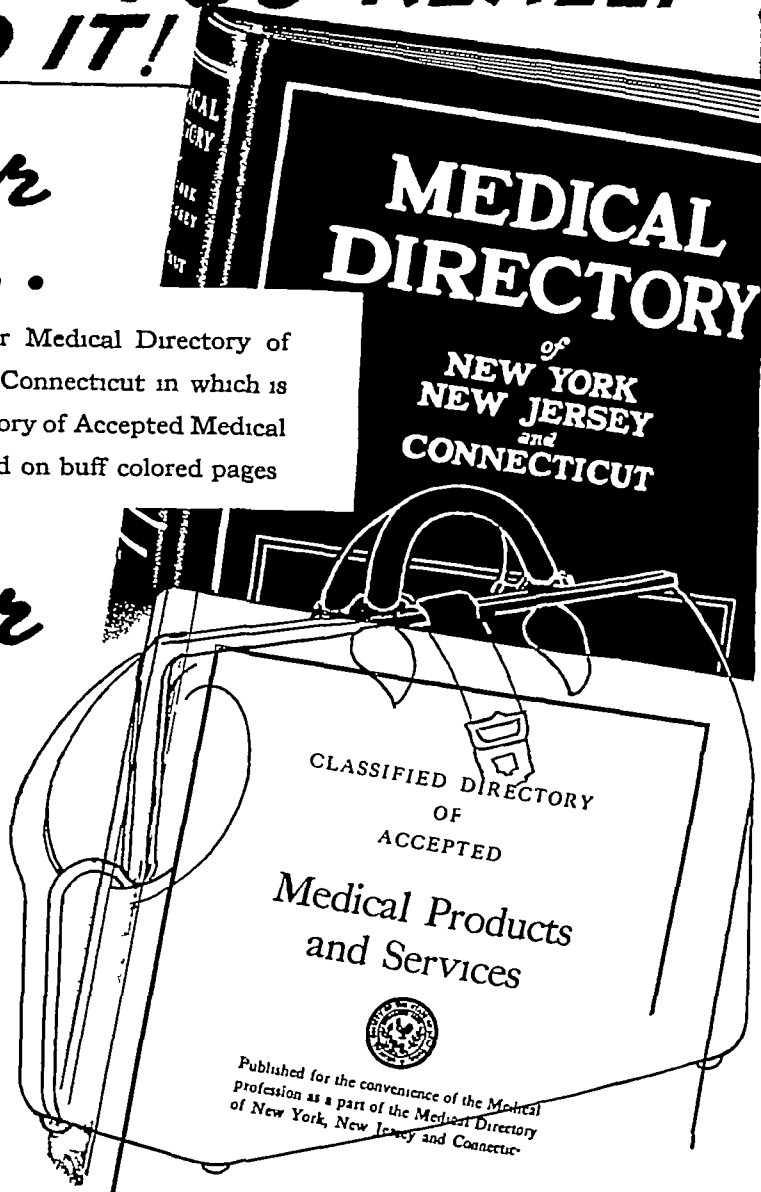
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*Special Article***Military Medicine in New York State Army Posts and Camps. II**

FOR the purpose of this article, your editors visited the station hospitals at Fort Wadsworth, Fort Jay, Fort Niagara, and Camp Upton. The station hospital at Fort Jay differs from those described in the first article of this series¹ in that in some ways it functions as a small general hospital. It serves not only the medical needs of the garrison stationed at Governors Island but also the adjacent metropolitan area and occasionally the entire corps area as well. In addition to the services usually found in the ordinary station hospital, an obstetric service is included. Acute venereal cases are referred to Fort Hamilton for treatment. An active service in general medicine and surgery and the specialties, with the exception of venereal diseases, is afforded.

Camp Upton and Fort Niagara contain the reception centers for their respective areas. Here, accepted draftees are sent for vocational testing, classification, outfitting, and inception of initial training. This function of these stations necessitates facilities in addition to those of the ordinary station. The men are cared for by the medical officers who have been assigned to the reception centers. Draftees remain at these centers for varying lengths of time, which results in a fluctuating strength of draftee personnel. The hospitals at the posts where the reception centers are located care for the occasional serum reactions that are encountered in the process of immunization in addition to the ordinary run of acute infections and injuries. The incidence of venereal disease is likely to be slightly higher than at posts that do not function as reception centers. Under the present Pre-Induction Examination Plan, men are examined by the Army Induction Boards one month prior to induction and have this interval of time to put their civil affairs in order. During this period they are not under military discipline, and the incidence of venereal disease is not amenable to control. Men occasionally report with infections acquired after completion of the physical examination by the Induction Board.

Your editors found excellent cooperation between the military and civil medical authorities and indications of constructive efforts being made to handle the problem of venereal

disease. All cases are immediately reported by the post hospitals to the local health officials with as much factual data concerning the exposure as can be obtained. Action by the public health and local police authorities then follows to remove local sources of infection.

In the station hospitals visited, many changes are being made in storage, preparation, and serving of food in order to obtain greater efficiency. Some buildings, now used for hospitals, were not designed originally for that purpose, while others were intended to serve as hospitals for a much smaller personnel. The reallocation of space to conform to modern practice, with new equipment, painting, redecorating, and building, is going forward at a rapid rate. Medical officers' quarters are comfortable, most hospitals having lounging rooms with radio, piano, and both popular and scientific magazines. A circulating library system passes the current issues of medical journals along from station to station for the information of the officer personnel at each hospital. Classes for instruction in paper work are being organized.

Young Medical Reserve officers, accustomed to serving on the staffs of civilian hospitals where the housekeeping and accounting details are separate from medical administration, in the Army are confronted with the necessity of knowing and performing both medical and administrative duties. The latter are varied, requiring a knowledge of regulations and forms and involving accountability for property of many kinds. Medical Reserve officers may not take much interest in acquiring these details, even though courses in instruction are offered, thinking that the knowledge will be of little benefit to them when they return to civil life. On the other hand, there is presented a real opportunity in these courses of instruction for many to acquire fundamental and highly useful knowledge of hospital administration. The medical officer with a working knowledge of Army Regulations and the ability to do administrative work is in great demand.

Most of the station hospitals that we have visited are located within a reasonably close distance to the headquarters of some county medical society. The majority of the medical officers are members of their own county society and might participate, if the demands of the service permit, in the scientific sessions

¹ Editorial—Special Article. New York State Med. J. No. 15, 1525 (August 1) 1941.

the potential menace to the entire nation of this destroyer of health can scarcely be exaggerated.

This animal [the rat] is the world's most notorious disease carrier, with perhaps two exceptions, the tick and the flea. And when it is realized that the rat, in addition to its own ability as a carrier, is often infested with both of these death-dealing agencies at the same time, its true worth as a human health menace is fully appreciated.

No less than seven major diseases and illnesses are known by medical science to be transmitted or caused by rats and almost a dozen more are under suspicion. Besides bubonic plague and typhus fever, the list includes pneumonic plague, jaundice, parasitic mange, tapeworm, and perhaps foot and mouth disease.

Fortunately for the health of the nation, most big cities now have a police regulation requiring citizens to keep garbage and trash containers tightly closed.

Fumigation with hydrocyanic acid gas is the Public Health Service's most effective means of reducing a large rat population aboard ships. In this connection two new pieces of equipment have been developed. One is a pump which forces the gas into the tiniest rat harborages. It can be operated easily by one man. The other apparatus is a more efficient type of gas mask that affords the fumigator foolproof protection against the life snuffing fumes of the poison.

In view of the haste with which ships carrying war supplies are now being loaded and unloaded in our ports it is possible that the rat may become a greater factor than in normal times in disease dissemination. In this regard it would be well to note carefully the release from the U S P H printed on page 1818 which tells of a conference on the subject of domestic plague.

Demands on U S physicians will be greater shortly when the total war pattern develops, says *Medical Economics* for August, 1941, page 34.

At present, the effort to coordinate America's medical resources is almost unbelievably complex. It is equally slow-moving. Reason Authority to do the job is split up between the army, navy, Public Health Service, Selective Service, the A M A, and many lesser government and civilian agencies. This may be good democracy. But defense officials pointedly complain of its inefficiency for emergency planning.

The major snarls produced by emergency health needs eventually wind up in the Washington office of the Health and Medical Committee. The committee is the chief advisory agency on medical preparedness plans. It functions under Federal Security Administrator Paul V. McNutt, who is coordinator of Health, Welfare, and Related Defense Activities.

In last month's action, the Health and Medical Committee recommended creation of the Procurement and Assignment Agency for Medical Personnel in a formal report to Coordinator McNutt. As the next step, McNutt will meet with War and Navy Secretaries Stimson and Knox to lay out an actual blueprint of the new agency's framework.

Official operation of the agency must await Congressional legislation. Hence its establishment is not likely before two or three months—perhaps more—have passed. Meanwhile, the plan is to be perfected for immediate use in the event of a national crisis.

The editors of the *Tennessee Medical Journal* for August, 1941, raise a very pertinent question in an editorial. We quote:

The attempt has been made to propagandize the public with the idea that the democratic system of medical care is very defective and that something radical should be done about it by the state and national governments.

Statistical data as to the rejections of draftees for military service are given as a reason.

It might be worth while to inject this one thought into the question at this time. During the more than twenty years that have intervened since World War No. 1 there has been a very great increase in the amount of medical care rendered by various branches of government in the United States.

Appropriations for health and medical care activities by federal, state, county, and municipal governments have been multiplied many times over again. These agencies and activities have entered into the field of infant care, maternity care, school health, public health, tuberculosis, crippled children—in fact, every branch of medical care has been touched by appropriations and by agencies.

It is appropriate to raise the question as to whether all these expenditures and agencies have yielded results commensurate with the expenditures made.

If by "results" the editors mean jobs, the results seem somewhat commensurate. If they are speaking of "health," we refer them to the Selective Service authorities for data on eyes, teeth, or what have you.

Symposium on Spastic Paralysis

THE CEREBRAL PALSY PROBLEM

LYMAN C. DURYEA, M.D., New York City

WHEN the average person thinks of crippling conditions he almost invariably thinks of poliomyelitis. But poliomyelitis accounts for 20 per cent only of crippling conditions in children under age 21. The second greatest major cause of crippling is seldom considered. The medieval conception that crippling is evidence of a family curse, of guilt, or of a tainted family strain and so to be concealed may be one reason why cerebral palsy receives so little attention. Cerebral palsy is the second greatest individual cause of crippling, a fact that is surprising even to many of the medical profession.

In the United States there are known to be at least 19,000 children with cerebral palsy, and the total is estimated to be nearer to 35,000. In New York City there are known to be about 2,000 children under age 21 who have cerebral palsy. The annual incidence in New York City is at least 0.0015 per cent of all infants born, excluding stillbirths and neonatal deaths. The incidence of cerebral palsy bears an apparent relation to the birth rate, although not necessarily a causal relationship, and it is not subject to epidemiologic fluctuations. These figures for New York City exclude those known to be feeble-minded. The prevalence of cerebral palsy is said to be the same for urban and rural areas. This is set at about 50 cases per 100,000 of the total population. The annual case load can be estimated with reasonable accuracy, and definitive programs of research and treatment can be instituted once the problem is made apparent.

Most cities in the country are not aware of the extent of the problem and of the numbers of children involved. Few cities have officially established adequate treatment or educational facilities for children with cerebral palsy. Private facilities are limited. As a result the majority of children with cerebral palsy receive little or no treatment.

In sixty-one cities, interested medical groups have instituted research and treatment pro-

grams where selected groups of these children are receiving intensive treatment and concurrent education.

In general, little is being done in the elementary or high schools toward the physical rehabilitation of these children, and few teachers are available who are trained in the special educational techniques required. The most severe cases are almost totally neglected with the exception of those who receive some instruction in their homes by visiting teachers who provide training. The more severely handicapped children with cerebral palsy require special educational techniques. There is little concerted effort made to supply these techniques or to correlate instruction programs with muscle re-education and training programs. Special educational techniques have to be developed on an individual basis, since the education of these children requires much ingenuity because of the existence of multiple physical difficulties.

The teaching of these children is closely associated with their treatment and training. For the integration of the two, there are required teachers who have the proper psychological approach, who are patient, and who are trained in the special techniques. There are no facilities for the selection and training of these children except those available in the centers and institutions where this special work is being done.

About 70 per cent of all children with cerebral palsy are stated to have an I.Q. of at least 70 and are therefore considered educable. In a small group in a clinic day school in New York City the I.Q.'s ranged from 74 to 142. Of those with an I.Q. of 70 or above, many can be made economically self-supporting and others can be trained to care for their personal needs.

Neither the problem nor its extent have received adequate attention by the medical profession.

Most hospitals treat some cases of cerebral palsy in physical therapy departments. Rarely in these departments are there technicians trained in the special techniques necessary, and there are few hospitals that have

Read by invitation at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 30, 1941.

Director, Crippled Children's Division, Department of Health.

of these local societies to the benefit of everybody In this connection, any statements made by an officer would be based on his personal opinion, and articles may not be published without the prior approval of the Surgeon General Members of local county soci-

eties would be afforded the privilege of personal contact with many of the younger men from different parts of the state and medical officers would be afforded the opportunity of participation in the programs carried on by the county societies

Plague Control Conference*

Evidence that plague infection among wild rodents of western United States is spreading eastward prompted Surgeon General Thomas Parran of the United States Public Health Service to call a plague control conference August 28-29 at Salt Lake City, Utah

The conference was attended by health officers from California, Oregon, Washington, Nevada, Montana, Idaho, Wyoming, Utah, Colorado, Arizona, New Mexico, and North Dakota Infection among wild rodents has progressed steadily during the past five years from the Pacific Coast eastward as far as the Dakotas The purpose of the conference was stimulation of rat control programs in urban and rural areas

In the past, outbreaks of human plague have almost invariably been preceded by marked increase in the disease among animals which harbor the infection Plague is passed from rodents to humans by infected fleas Accord-

ing to Surgeon General Parran, unless prompt and effective control measures are undertaken plague infection among rodents may spread to the more populous areas of the Middle West and East creating a serious hazard to humans

Surveys conducted by the Public Health Service in 1935 revealed plague infection among wild rodents in Montana, California, and Oregon In each succeeding year, including 1941, infection has been demonstrated in ground squirrels, chipmunks, rats, marmots, and other wild rodents in Arizona, California, Idaho, Montana, Nevada, New Mexico, Utah, Washington, and Wyoming

Infection among rodents has been discovered recently as far east as North Dakota

The first outbreak of human plague in this country occurred in 1900 in San Francisco Plague in California reached epidemic proportions in 1907-1908 Since 1900 there have been 502 cases and 315 deaths in this country Two human cases of plague, both in California, have been reported this year

*Release from The Federal Security Agency, U S Public Health Service, Washington.

SCIENTIFIC EXHIBITS

1942 Annual Meeting

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The Annual Meeting will be held April 27-30, 1942, Hotel Waldorf-Astoria, New York, New York. The list will be closed on January 1, 1942

PETER IRVING, M D, Secretary

treatability whether or not they are to be referred for treatment. The classification serves as a means of selecting children for treatment and as a measure of the extent of the total problem. The classification for treatment purposes should be uniform. Consideration should be given to the limitations in the scope of a specific local program. For every child, prior to selection for treatment, a history and record regarding the child's present status should be prepared.

There should be selection of children for referral to treatment facilities which may be classified as follows:

- 1 Hospital resident treatment for the more severely handicapped

- 2 Outpatient clinic treatment for the less severely handicapped who are adjustable in the regular schools

- 3 Hospital clinic day school treatment for the intermediate group and for those whose major difficulty is a repulsive appearance. Here intensive treatment can be carried out concurrently with education during certain hours of the day.

- 4 Special training and treatment facilities as required for special disabilities

- 5 Home training and parental education in home training for home-bound children and others to provide continuity of the treatment instituted in hospitals and clinics

Hospital resident treatments should provide maintenance, schooling, medical care, entertainment, and recreation, in addition to treatment of the specific disabilities. The more severely handicapped children should be accepted for treatment in resident units for a trial period of three months. This period should be extended if the child's progress warrants it or until further treatment is considered inadvisable or unnecessary.

Children should be selected in the diagnostic clinic for treatment in outpatient clinics. Preferably, only those children who offer a reasonably good treatment prognosis should be selected for treatment in the clinic. Because of the large case load in the older age groups it is advisable to limit temporarily the provision of facilities. As experience develops, such facilities should be gradually expanded to meet the needs of all eligible children with cerebral palsy with an I Q of 70 or above.

Hospital clinic day schools for selected children are important. In clinic day schools intensive treatment should be given concurrently with instruction. Children who require intensive treatment and training should be selected in the diagnostic clinics for treatment

in these schools on the basis of the degree of physical defect and the severity of multiple handicaps.

A program of home training and care should be instituted by the utilization of the services of local orthopedic and other nursing agencies. An essential part of care is the training and education of the parents in their responsibilities to the child and in the specific procedures that the parents should follow in the home to supplement the treatment and training provided the children by private physicians and clinics.

The orthopedic nursing agencies and the social agencies have great opportunities in the fields of general care and supervision, in parental education, and in the provision of follow-up services and the solution of socio-economic problems.

A program of follow-up to determine treatment status should be instituted in order that a child may progress from one type of service to another as his condition warrants.

The basic personnel required for a properly established diagnostic and treatment program consists of:

- 1 A physician experienced in the diagnosis and treatment of cerebral palsy

- 2 A psychologist with special experience in examining children with cerebral palsy

- 3 A chief physical therapist trained and experienced in the treatment of cerebral palsy and capable of training others

- 4 An assistant physical therapist with similar qualifications

- 5 Teachers experienced in teaching children with cerebral palsy

This personnel should be utilized to provide to others training and education in diagnosis and treatment of cerebral palsy and in the special techniques required. Research should be encouraged.

Conclusion

In order to meet effectively the problem of cerebral palsy:

- 1 There should be established facilities for research into its causes, prevention, functional pathology, and treatment

- 2 Information concerning current methods of treatment and education should be disseminated

- 3 Facilities for the treatment of cerebral palsy should be established in acceptable hospitals and should provide for medical, neurologic, and orthopedic supervision, social service, corrective physical education, and psychometric testing

clinics especially for the treatment of cerebral palsy where the necessary technics are carried out by properly trained personnel

The problems of individual children with cerebral palsy are the resultants of associated multiple handicaps. They are different and more difficult of solution than those of any other type of handicapped children.

In the recent past it was generally considered that nothing could be done for these children. In the past ten years considerable progress has been made in methods of treatment and training so that at present there is opportunity, based on experience, to approach the therapeutic problem intelligently. The problem in regard to the provision of facilities for treatment is not insurmountable.

The following are required

- 1 Research into the causes, prevention, functional pathology, and the treatment of cerebral palsy. It is proper that these be the responsibilities of orthopedists and neurologists.

- 2 The institution of adequate and proper hospital and clinic facilities.

- 3 The institution of more adequate educational procedures based on individual requirements resulting from multiple handicaps.

Current knowledge of methods of diagnosis, treatment, and training should be made available to the undergraduate medical students, to interns and residents, and to the medical profession. Nonprofessional personnel should be trained in the special technics that come within their fields. Educators should be trained in the special educational technics required, with consideration of the existence of multiple handicaps so common among children with cerebral palsy.

Almost all children with cerebral palsy have the condition at the time of birth or soon thereafter and can usually be diagnosed by the age of 1½ to 2 years, although some of the multiple handicaps may not be diagnosed until later. Many of those who are treating cerebral palsy believe that the condition should be treated early in life. Only a relatively small proportion of these children in the age group under 5 years are under the supervision of hospitals or physicians. This indicates the need for early case-finding. When children reach the age of 5 or 6, parents become concerned about their education, and hospital records show that larger numbers of children in each of the older childhood ages are under supervision than is true of those under 5 years of age.

There is a large reservoir of children over

age 5 for whom little has been done. This group contains the increment of all the unsuccessfully treated cases and those who have had no treatment and whose original handicaps have been permitted to develop untreated. The number of children in this group is comparatively large. It would appear, for economic reasons, that the approach to the current problem should be through the group under 5 years of age to study methods of decreasing ultimate handicaps and, thus, eventually to lessen the load in the older age group. An adequate program necessitates consideration of both age groups in research and treatment. There should be diagnostic facilities for selecting children with cerebral palsy who offer a reasonable prognosis of treatment and education. Proper selection of children for treatment is essential. This can be done best by diagnostic clinics where the specialist in cerebral palsy and the psychologist make a determination of the treatment prognosis for each case. The treatment prognosis is the criterion upon which children in the older age group should be selected for treatment. The younger children, under age 5, should probably be blanketed into a treatment program because, as a group, they probably offer a better ultimate treatment prognosis.

Diagnostic clinics should be an integral part of established cerebral palsy clinics, staffed by members of the clinic staff. The diagnostic functions should be distinct from the therapeutic functions. The frequency of the diagnostic sessions should depend upon the case load of individual communities and the case load of individual hospitals. The number of children per diagnostic session should be limited on an appointment basis.

The examinations in the diagnostic clinics should include

- 1 A complete physical examination to determine the type of disability, the cause, extent and degree, the treatability, and the treatment prognosis.

- 2 A mental examination to determine the social maturity, level of intelligence, stability, and educability. The I Q examination should always follow a complete physical examination so that the psychologist making the tests can be acquainted with all of the defects. The tests should be given with the modifications required by the existing sensory defects. The results of these tests when indicating subnormality should not be accepted as final, since no test is entirely satisfactory for children with cerebral palsy.

Children should be classified in terms of

TABLE 1—SUMMARY OF DIFFERENT TYPES OF PARALYSIS

Normal	Involuntary Movements	Tendon Reflex	Opposed Muscles	Motor Unit Management	Treatment
	None	Short, moderate	Relax	Asynchronous	
Lower neuron palsy	None	Abolished	Relax		Support graded exercise
Paraplegia, acute	None	Abolished	Relax		Support care of bladder and back
Chronic	Rare ? reflex	Spreads widely	May relax or contract	Synchronous	Care of bladder posterior root section?
Pyramidal tract lesion	Reflex or none	Low threshold violent, sustained	Relax	Synchronous	Retraining posterior root section?
Rigidity	None	"	Contract	Synchronous	{ Hyoscine, etc., pyramidal tract section, cortical resection Extrapyramidal tract section, cortical resection anterior root section
Alternating tremor	Alternating	"	Relax	Synchronous	
Athetous dystonia torticollis	Slow irregular	Varies	Contract	Asynchronous	

causing one or another group of fibers to suspend contraction usually before any discomfort reaches consciousness

Paraplegia—When the spinal cord is abruptly divided (for example, by an acute thrombotic transverse myelitis or following a fracture of the spine), the phenomenon of "spinal shock" occurs. The activity of the anterior horn cells is abruptly suppressed below the level of the lesion, so that a complete flaccid paralysis results resembling that seen with severe polyneuritis. This condition lasts days or weeks and indefinitely if the patient develops a cystitis, decubitus, or other inflammatory disease.

The treatment of spinal shock consists chiefly in preventing infection. The most important step is the installation of tidal drainage of the bladder,⁷ which should be done immediately and routinely in every case. Care of the back then becomes much easier. The administration of mandelic acid or of sulfathiazole (1 Gm. q 4 hours) should be commenced at the first suggestion of bladder infection.

The care of the extremities during this period consists chiefly of preventing foot-drop or other muscular lesions, of the use of a cradle, and of massage to maintain the nutrition of muscles.

When spinal shock passes off, a stage of hyperreflexia sets in. If the transection of the cord is complete, the legs are usually relaxed except when some trifling stimulus—such as is produced by stroking the skin—reaches the isolated spinal segment, when a "mass reflex" occurs. The legs flex on the abdomen and, often, urine and stools are discharged.

Often, however, a variable number of fibers still pass the site of injury. The patient then has a slight control over the legs, bladder, or bowel and some sensation—usually disagree-

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This distressing condition is difficult to treat. The involuntary spasms are often stirred up by intestinal movements or chilling of the skin, of which the patient is unaware. Attention to "discomforts" that the patient does not perceive may palliate them. The bladder may become spastic and contracted, in which case considerable relief may be afforded by occasional courses of tidal drainage under relatively high pressure. Bromides have a slight effect.

Surgically, tenotomies and peripheral nerve sections are standard practice. The use of posterior root section (first practiced by Dana and Abbe, members of the Medical Society of the State of New York), is often extremely successful in well-chosen cases of this group. The reasons for the undeserved disrepute of this operation will be considered below. It is possible that some procedure directed at intraspinal pathways would afford relief, but experiments in this direction have so far been fruitless.^{8,9}

Hemiplegia, Monoplegia—Injury to the pyramidal tract anywhere in its course produces a hyperreflexia and the appearance of the Babinski, Hoffmann, and other pathologic reflexes (as soon as "spinal shock" has passed off). Whether or not there is a superimposed rigidity depends upon factors that are obscure. With or without it, the condition is usually called "spasticity," even though the extremity may be entirely relaxed in certain positions.

The disability resulting from hemiparesis is in part dependent upon the abnormal pull of antagonists which opposes any movement as

4 Such facilities should include diagnostic facilities, and there should be specific recommendations made for treatment

5 Facilities should be developed in such a manner as to permit of scientific study and research into the general problems of the causes and treatment of cerebral palsy

6 Selected children should receive physical training and education in hospital clinic day schools or in inservice hospital units so that they may receive physical education concurrently with their scholastic education

7 Facilities for the treatment of cerebral

palsy should include provision for the training of personnel in the technics of diagnosis and treatment

There is an increasing recognition of this problem of children with cerebral palsy as evidenced by the fact that, in twenty-seven states, programs are in operation on a limited scale under private and public auspices out of which, in time, should come experience that will provide guidance for more adequate programs

No community should neglect these children any longer

NEUROLOGIC ASPECTS OF SPASTICITY AND ATHETOSIS

TRACY J PUTNAM, M D , New York City

TYPES of Palsy—The fundamental unit of the neuromuscular system consists of a single anterior horn cell, its axon, and the group of muscle fibers which it innervates. If any part of this structure is destroyed (by poliomyelitis, trauma to the nerve, or "toxic" or deficiency states), a flaccid palsy results. The principles of treatment of such palsies are well known—they consist in preventing overstretching of the weakened muscles and exercises, apparatus, or operations to compensate for the defect if spontaneous recovery does not occur.

The paralyses and other disorders due to disease of suprasegmental long spinal tracts and higher structures are often lumped together as "cerebral palsies" or "spasticity," when as a matter of fact the variety of physiologic conditions that may exist alone or in combination is enormous. Relatively little special attention has been given to the treatment of these conditions. Often the same treatment is given as to cases of poliomyelitis, and almost no attempt has been made to apply physiologic knowledge in treatment. This is, of course, in part because the physiology and clinical manifestations of many of the syndromes have been obscure. Recent investigations have considerably clarified the problem and have provided a firmer basis for rational treatment.

The data that have been most illuminating are

1 More precise descriptions of the results of stimulation and extirpation of definite

cerebral structures in primates (reviewed in Fulton's book¹)

2 A study of the various syndromes by means of the extremely clear and definite method of electromyography (Hoefler and Putnam^{2,3} and Hoefler⁴). A schema of the results of this study is shown in Table 1.

3 Observations resulting from an increasing range of neurosurgical operations for the relief of spasticity, tremors, rigidity, and athetosis (reviewed in the symposium published by the Association for Research in Nervous and Mental Disease on "The Basal Ganglia"⁵).

The normal neurologic management of motor performance will be considered below, then that of various fairly definite syndromes, with suggestions for the treatment of each. It should go without saying that combinations of syndromes are often encountered.

Normal Neuromuscular Management—It has become clear, chiefly through the work of Sherrington and his co-workers⁶ in animals and that of Hoefler^{2,3,4} in human beings, that not only active contraction of muscles to produce work, but also the involuntary and unconscious "tone" that maintains posture, is produced by the intermittent contraction of motor units (of which there are many thousands in the smallest muscles). In either volitional or "tonic" contraction, single motor units twitch briefly but repeatedly in combination and a sort of irregular asynchronous rotation, which produces the effect of a smooth flow of force like the explosions in a gasoline engine. This partitioning of activity is regulated, to some extent at least, by sensory impulses, arising perhaps as a result of fatigue,

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TABLE 1—SUMMARY OF DIFFERENT TYPES OF PARALYSIS

	Involuntary Movements	Tendon Reflex	Opposed Muscles	Motor Unit Management	Treatment
Normal	None	Short	Relax	Asynchronous	
Lower neuron palsy	None	moderate Abolished	Relax		Support, graded exercises
Paraplegia, acute	None	Abolished	Relax		Support, care of bladder and back
Chronic	Rare ? reflex	Spreads widely	May relax or contract	Synchronous	Care of bladder posterior root section?
Pyramidal tract lesion	Reflex or none	Low threshold, violent sustained	Relax	Synchronous	Retraining posterior root section?
Rigidity	None	*	Contract	Synchronous	{ Hyoscin etc., pyramidal tract section cortical resection
Alternating tremor	Alternating	*	Relax	Synchronous	
Athetosis dystonia torticollis	Slow, irregular	Varies	Contract	Asynchronous	Extrapyramidal tract section cortical resection anterior root section

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The disability resulting from hemiparesis is in part dependent upon the abnormal pull of antagonists which opposes any movement as

soon as it is begun. In part, it is due to a loss of the exquisite blending and grading of motor unit discharge characteristic of normal movement. This is well shown by electromyography, the motor units are seen to discharge in intermittent volleys, producing an irregular, tremulous, and inefficient movement. Finally, atrophy of disuse takes place.

The treatment of hemiparesis is not well standardized. In the acute, flaccid stage, the patient can sometimes be "reminded" how to use his extremities by a session or two of faradic stimulation. Aside from this, electrical stimulation is wholly useless in the treatment of suprasegmental paralysis (as in peripheral nerve disease, Chor¹⁰). The patient should be encouraged to practice using the extremity and should be given some occupational therapy that will use his remaining powers to their best advantage. Massage should be avoided after the stage of shock, since it tends to arouse proprioceptive reflexes. Passive motions carried out slowly so as not to be stimulating, should put the joints through a full range of motion daily. Splints are of little use, except that a caliper splint hinged at the ankle may be a great comfort as a remedy for foot-drop.

Orthopedic operations are helpful in selected instances. Posterior root section or subarachnoid injection of alcohol (carried out with due caution) is theoretically sound and often helpful if segmental reflexes or hyperreflexia constitutes a substantial part of the disability.

Rigidity—Rigidity differs from hyperreflexia or spasticity by the fact that there is a constant innervation of both agonists and antagonists, which are practically never at complete rest. This is clearly shown by electromyography. The proprioceptive (tendon, stretch) reflexes are usually somewhat exaggerated also.

Rigidity is seen in its purest form as a part of the parkinsonian syndrome. It may be associated with birth injuries or other diffuse lesions of various types. The location of the lesions essential to it is obscure (Aring¹¹ and Balser¹²).

Therapeutically, the problem is chiefly one of relaxing spasm, since strength is often well preserved. In parkinsonian cases, drugs of the atropine series are often successful. The new Bulgarian belladonna seems to have especial virtue in some cases. Physical therapy and psychotherapy do not seem to accomplish much. Certain operations on the nervous system have been tried,⁶ but the results are not yet certain. Peripheral nerve sections and posterior rhizotomy do not seem

to accomplish much toward relieving the syndrome.

Alternating Tremor—The most familiar form of tremor is that often seen in post-encephalitic states. The tremor has a definite rate and rhythm of 5 to 8 per second, which varies little in a given case. It is produced by a brief twitch of one muscle, then a twitch of its antagonist, both unopposed. As a result, little energy goes into the movement, and the "basal" metabolism is usually normal or low.¹³ Lesions are found characteristically in the striatum and substantia nigra, not interrupting either pyramidal or extrapyramidal pathways (Fig. 1).

As with rigidity, the most widely useful treatment is the use of drugs of the atropine group. There is often an associated arthritis and peri-arthritis, for these, massage is useful, but not for the tremor. Physical therapy in general accomplishes little.

A promising start toward an effective surgical treatment of severe cases of tremor has recently been made. The procedures employed have included cortical operations (Bucy¹⁴ and Klemme⁶), section of the pyramidal tract in the spinal cord,¹⁵ and operations on the basal ganglia (Meyers⁶). Probably all of them produce a greater or less injury of the pyramidal tract but surprisingly little disability. The operative results have been brought together in the symposium of the Association for Research in Nervous and Mental Disease, already mentioned.⁶ It is too early to say which type of operation will prove the most conservative, but the proportion of relief has been high with all of them. Following operations of this type, patients have sometimes returned to work. Ordinarily, walking is improved, and the affected hand becomes useful for eating, writing, etc. Such operations may be satisfactorily applied to perhaps the majority of severe unilateral cases, but the feasibility of their employment in bilateral cases is at present in some doubt.

Athetosis—This term was first used by Dr. W. A. Hammond (a member of the Medical Society of the State of New York) to describe a syndrome consisting of involuntary, irregular, slow, squirming movements of one limb appearing in an adult after a hemiplegia. Physiologically, the squirming and intermittent rigidity is produced by irregular, variable contractions of many or all of the muscles of an extremity, sometimes one and sometimes another predominating.

A similar disorder sometimes begins in infancy or early life and attacks the muscles of

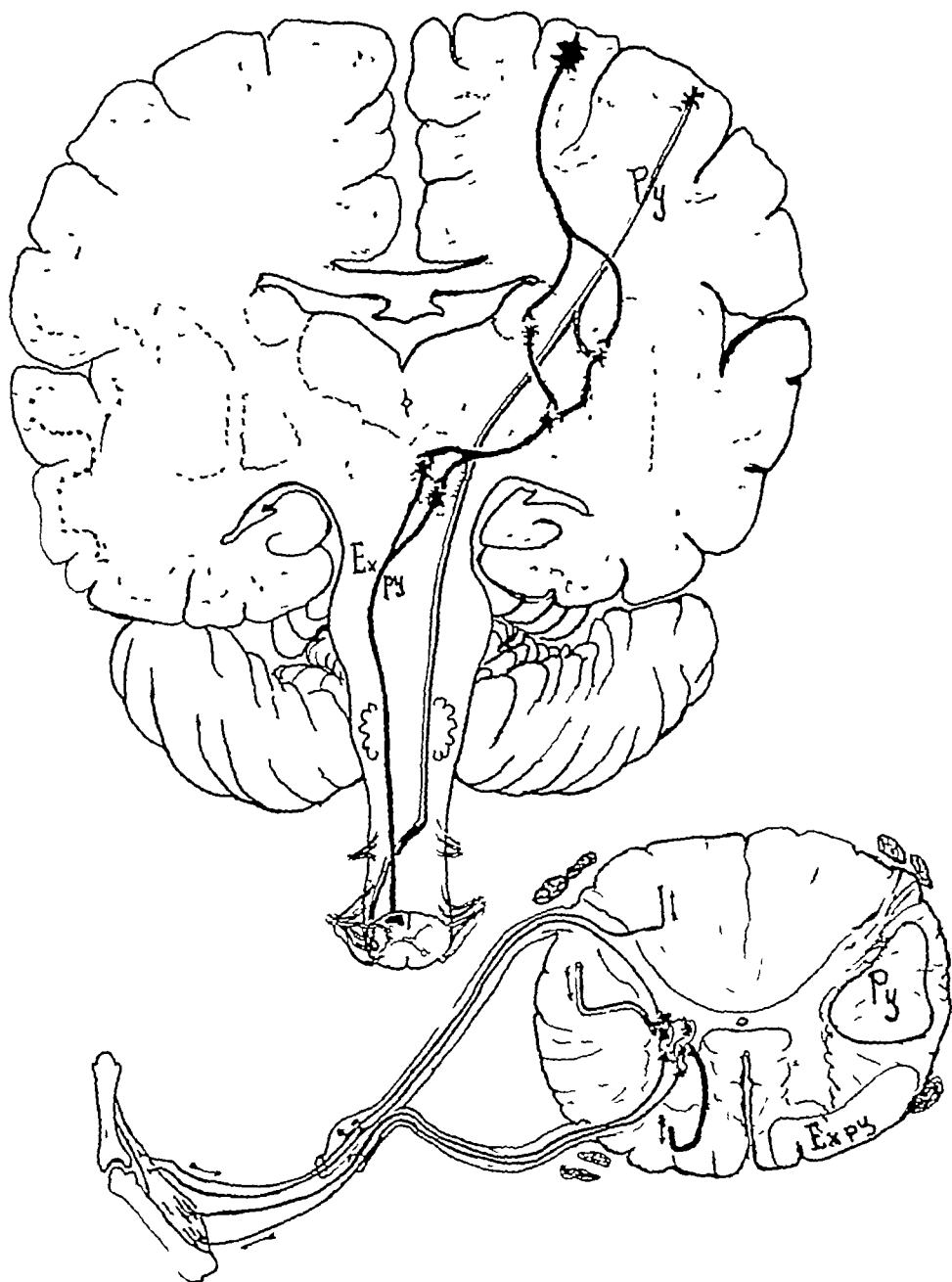


FIG 1 Diagram of the path of the pyramidal tract and of the extrapyramidal system (schematic) Note the position of the extrapyramidal tracts in the anterior column of the spinal cord, also note that there is at least one intercalated neurone between the ending of the long tracts and the anterior horn cell Intersegmental short spinal tracts are not shown

the trunk as well as the extremities It is then usually known as dystonia Torticollis, chronic chorea, and hemiballism are other sub-varieties of the syndrome Lesions are regu-

larly found in the caudate and lenticular nuclei, apparently interrupting certain links in the extrapyramidal chain (Fig 1) The central mechanism is obscure, but it seems

fairly clear that the abnormal impulses do not utilize the pyramidal tracts exclusively (perhaps not at all), for the dyskinesia may occur even when there is a complete loss of voluntary control and, anatomically, a degeneration of the pyramids may be found.

Attempts at treatment of athetosis and dystonia, considered hopeless until recently, are now proceeding in three directions. Retraining and careful minute instruction in walking and the use of the hands often produce considerable improvement, chiefly in the milder cases. Attention to providing special chairs, tables, typewriters, etc., may make a great difference in the patient's comfort.

The use of drugs of the curara series has aroused a good deal of interest. At present, however, the treatment cannot be considered a practical one, for proper preparations are not to be had. Whether the benefits will ever outweigh the difficulties and dangers of the treatment remains to be seen.

Finally, there has been great progress in surgical treatment (which, however, is less satisfactory in this group of diseases than in cases of alternating tremor).

As with tremor, operations have been performed at the cortical⁵ and at the spinal level. Either may produce satisfactory results in a certain proportion of cases, but disappointments are common with both. The cortical operations are on the whole safer, but they carry more danger of producing motor disability. The recently devised method of operation under local anesthesia and injection of procaine into the cortex before any extirpation is carried out should improve results.^{6,13} The spinal operations (on the extrapyramidal pathways in the anterior column) are more suitable for dystonic and bilateral cases and also those complicated by torticollis.¹⁴

Posterior root section is not effective. Curiously enough, it was the failure of posterior root section in cases of athetosis which caused Frazier to throw the weight of his authority against the use of the operation. In addition, he alleged that the mortality of laminectomy was too high to justify its use except where life is at stake and that spastic children are poor subjects for operation. Scarcely a single neurologic surgeon would agree with these statements today.

Spasmodic Torticollis.—This is a peculiar subvariety of dystonia, attacking the muscles of the neck and shoulders chiefly or exclusively. There is considerable doubt as to the nature of the disease, some cases appear to have been relieved by psychotherapy,¹⁵ but others have

undergone extensive treatment without improvement. In some cases, further, there are many manifestations of dystonia elsewhere in the body, and lesions have been found post-mortem.¹⁵ The condition is a most distressing one, and patients often beg urgently for relief.

The problem of ruling out a hysterical origin for the spasm is one that deserves first consideration. Some progress has been made toward a positive diagnosis of hysteria by means of the Rorschach test. True neurotic disturbances should disappear with relatively light anesthesia (e.g., with pentothal). In cases of torticollis in which mechanical or surgical treatment is in prospect, it is probably wise to refer the patient to a psychiatrist for a trial course of treatment before any radical procedure is undertaken. In general, hysterical symptoms yield rapidly to suggestion and, on the other hand, a patient who is really miserable from his torticollis will demand a radical treatment rather promptly if he knows that it exists.

Since medical and orthopedic treatment are seldom curative in torticollis, the effective type of operation introduced by Foerster¹⁶ and modified by Dandy¹⁷ and others^{18,19} has been a great boon. It consists in a bilateral section of the first three cervical anterior roots and the spinal accessories in the posterior fossa, if they can be easily reached, on both sides. If the accessories cannot be reached intraspinally, they are divided in the neck at a second stage. The fourth anterior root may also be taken in severe cases.

The results of this operation have been uniformly good. The patient retains a surprising mobility of the neck. No deaths have been reported. The pessimism often expressed in regard to the surgical treatment of torticollis is a relic of the era of myotomies and extra-spinal operations, which are indeed useless.

Conclusions

Proper treatment of spastic disorders and dyskinesias should rest upon a knowledge of the fundamental physiologic mechanisms at work. Our knowledge of these mechanisms has greatly improved in recent years, and certain therapeutic principles naturally follow. The next few years should show a considerable harvest from them.

Summary

1. The diseases of the peripheral neuromyotonic unit, such as poliomyelitis and neuritis, are fairly well understood, and forms of treat-

ment are standardized. This is not true of the paralyses due to diseases of tracts of the spinal cord and higher structures.

2 The important steps in the care of acute paraplegia are the use of tidal drainage to prevent infection of the bladder and care of the skin. In the chronic stage with spasticity, hyperreflexia, and involuntary movements, meticulous care of the bowels and avoidance of chilling or irritation of the skin are advisable. Posterior root section is sometimes of value.

3 In cases of hemiplegia, retraining is often helpful. Massage and the use of electricity are usually to be avoided. Posterior root section is occasionally indicated.

4 Rigidity (for example, as a part of parkinsonism) is best treated with drugs of the atropine series, although successful results of surgical treatment have been reported.

5 Alternating tremor also responds to treatment with belladonna and the like. Various surgical operations (directed chiefly at the pyramidal tract) have yielded a large proportion of satisfactory results in severe unilateral cases, with a low mortality.

6 Athetosis and dystonia are often benefited by retraining. Several neurosurgical procedures are available and are sometimes strikingly beneficial, but the results are more variable than those following the operation for alternating tremor.

7 Spasmodic torticollis is a fairly definite entity, which may, however, easily be confused with hysteria. Psychotherapy is usually

worth trying, but, if it fails, the Foerster-Dandy operation of intraspinal anterior rhizotomy gives excellent results without reported mortality.

8 The differentiation of these various conditions and the decision as to treatment often demand thorough neurologic study, which should include electromyography in doubtful cases.

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THE DIFFERENTIAL CHARACTERISTICS OF SPASTICITY AND ATHETOSIS IN RELATION TO THERAPEUTIC MEASURES

WINTHROP MORGAN PHELPS, M.D., Baltimore

CEREBRAL palsy is a complicated group of conditions. The name cerebral palsy refers to the motor manifestations, probably because these are the most obvious. They are also frequently the most misleading. The importance of the condition in the fields of pediatrics, neurology, neurosurgery, psychology, and education, as well as orthopedics, is great. It is difficult to discuss cerebral palsy without relating it to all these fields.

The condition is widespread and apparently quite even in its distribution between cities and rural areas. Surveys, some complete

and others still in progress, have shown that there are about 7 of these children born per year per 100,000 of population. Further statistics demonstrate that of these 7, 1 dies during infancy or early childhood, so that the problem is of 6 new cases per year per 100,000 population. Of these 6, 2 will be definitely mentally defective. There is, therefore, a problem of 4 children per year per 100,000 population who will live and who are mentally deserving of rehabilitation. From this figure, the number of cases in any city or state under a given age can be easily computed. For example, in a city of 150,000 people there would be 6 of these children per year, under 16 years of age this would represent 96

mentally normal cases. Of these, it would be found that approximately 50 per cent are of moderate degree of severity, while 25 per cent would be mild and 25 per cent, severe.

Since cerebral palsy is a group of conditions, some sort of classification is necessary. An etiologic classification is not feasible, since congenital anomalies, birth injury, disease—such as encephalitis—trauma, and tumors could all give an identical picture if the location of the lesion were the same. An anatomic and pathologic classification is of great importance to pathologists and neurosurgeons, but since at present the detailed physiology and cerebral localization of function is so obscure this is chiefly of experimental value. It would seem, therefore, that if a classification on a basis of the type of motor disturbance could be made the various forms of therapy applicable to these conditions could be better evaluated.

Here, one is faced with a mass of loosely defined terms which have in the past confused the picture badly. On the one hand, there are spasticity, plastic and decerebrate rigidity, hypertonus, and hypercontractility, none of which are necessarily quite the same thing and may have origin in totally different parts of the brain. On the other hand, there are athetosis, chorea, choreo-athetosis, dystonia, ataxia, and many others that seem to overlap.

In order to arrive at a fundamental concept it is necessary to determine what possibilities there are for difficulties with muscle control. Obviously, aside from normal voluntary contraction, considering first the individual muscle, there can be inability to contract the muscle at all, which is usually flaccid paralysis. But this is complicated by the fact that there are muscles that cannot be contracted at all but are not necessarily flaccid. The opposite of this condition of paralysis or inability to contract a muscle voluntarily is, of course, a muscle that contracts involuntarily. The terms "flaccid" and "spastic" are opposites in reference to tone but not in reference to contractile power, either voluntary or involuntary.

It is necessary to distinguish, therefore, between variations in tone and variations in contractile ability, and these two are not always related. Of course, there are many combinations. In the ataxic extremity there often is flaccidity but no paralysis combined with involuntary motion of muscles not related to the act being performed. Also, true spasticity represents definite hypertonus with normal voluntary contractile ability. The

apparent difficulty with contraction of a true spastic muscle is the spasticity of its antagonist. The hypertonus is only evident upon contraction or other stimulus such as stretching.

Suppose only one of a pair of antagonistic muscles was spastic—the flexor spastic—the extensor being normal. Then it would be found that *flexion* could be normally performed, since the spastic flexor has normal contractile ability. *Extension*, however, performed by the normal extensor muscle would be the motion interfered with, since the hypertonus of the spastic muscle would be difficult to stretch. In fact, this very stretching sets up a reflex contraction of the muscle tending to block the motion attempted. This is the stretch reflex. If both the flexor and extensor were spastic, then motion would be impeded in both directions. The presence of the stretch reflex is the indication that a muscle is spastic.

By carrying out a muscle examination and determining which muscles show stretch reflex, the exact limitations of gait, arm use, and even speech can be determined. Unless this stretch reflex is present, true spasticity is absent. In rigidity, the hypertonus is constant and is of a plastic rather than a contractile type.

Involuntary motion is an entirely different category. In true athetosis there is no change in tone but only involuntary contraction taking place. The patient has no disturbance of his voluntary motor ability, but the results of attempted motions are distorted by the involuntary motions present. The picture, therefore, of spasticity and athetosis would seem to be clear and distinct from each other, but as a matter of fact they are often confused. The reasons are these:

Attempted motion in the spastic sets up a stretch reflex as has been described. Suppose a spastic makes a voluntary attempt to extend the great toe. This motion causes a stretch reflex in the flexors of the toe, tending to pull it down. This, in turn, pulls down the foot, since the toe flexor is a long muscle arising high in the calf. This motion stretches the dorsiflexors of the foot pulling it up. This, in turn, stretches the gastrocnemius, which, being attached above the knee, tends to flex the knee, which stretches the quadriceps, extending the knee again. Since the quadriceps is also a hip flexor, through the action of the rectus femoris the hip is flexed, which stretches the gluteus maximus extending the hip. Thus, a whole train of motions is set

up in the leg simply as the result of the voluntary attempt to extend the great toe. It can easily be seen how much this might resemble true athetosis. The important observation is that the involuntary motion was initiated by a volitional attempt.

The athetoid can also closely resemble the spastic. If a normal individual riding in the back seat of an automobile being driven rapidly over a rough road was given a pad and pencil and asked to draw a straight line, the result would be discouraging. He would seize the pad, grip the pencil, and tense his hands and arms in an attempt to stop the motions. By so doing, however, all the jars would be carried to his hands, and the line being drawn would show it. Of course, if he should relax his whole body and loosen his hands, he could do much better, yet this would not be his natural tendency. The athetoid does the same thing. In an attempt to control the involuntary motions, early in life he tends to tense himself, and gradually this tension becomes habitual. The resulting picture is often stiff and rigid and strongly suggests the spastic. The important observation here is that the tension is voluntary, although habitual, and that the basic involuntary motions are not initiated by a volitional attempt. Thus, in the spastic the tension is *involuntary* and motion is *voluntarily* initiated, while the athetoid's tension is *voluntary* and the motion *involuntary*.

As was stated, the motor manifestations are the most obvious evidences of cerebral palsy and the ones from which the conditions get their names. The sensory disturbances are of considerable importance and are often overlooked. The eyes may be normal as far as visual acuity, myopia, hyperopia, or astigmatism are concerned, yet the extraocular motor control may be so disturbed as to make reading almost impossible. Strabismus of a spastic nature will result in monocular vision, since each eye can sometimes be moved easily in one direction and only with difficulty in the other. Thus, one eye would be used reading from left to right while the other would bring the fixation back to the beginning of the next line. The involuntary motions of the extraocular muscles seen in athetosis are sometimes such that there is limitation of upward and downward movement and, in other instances, of horizontal movement. Since these motions are frequently associated with athetoid motions in the neck, fixation on reading is difficult. These children can often fix on a single letter

or point but are unable to move along the line. Also, there is often nystagmus present which may blur the words or produce a sense of dizziness and nausea on attempting fixation. These children are best taught to read at a distance first, but only too often are these eye difficulties overlooked entirely, and the child's failure to learn to read is attributed to mental deficiency.

In the athetoid group especially, there is a definite incidence of hearing defects which again does not often show up on the usual hearing test. The child would be able to hear a pin drop or a watch at the normal distance from the ear, yet he will have a hearing loss or cutoff at a certain pitch level so that some of the sounds in normal speech will not be heard. This may cause a loss of the "S-F-TH" group or, if the cutoff is lower, it may even involve the loss of the overtones necessary to the sound of the vowel "E." Then the words "seat," "set," "sit," "sat" would all sound to him like "uh." Since the "S" and "T" would not be heard and the "E" overtones are lost, his response to commands to say these words would all be "uh" and, since we all speak as we hear, his speech would be defective. Naturally, he would also have great difficulty in understanding speech.

Evaluation of mentality must take into consideration the possibility of these handicaps as well as the more obvious motor disturbances. There are, of course, true defects among the cerebral palsies, but the diagnosis of true mental deficiency must be made only after excluding all the disturbances of acquisition of knowledge through the eyes and ears and the disturbances of the demonstration of knowledge through the motor system, including speech. Speech may be absent or defective either because of defective hearing or because of spasticity or athetosis in the speech mechanism. Sometimes there are both a hearing defect and athetosis in the speech mechanism.

The presence of athetosis in the face, with grimaces and drooling, is misleading, and spastic facial muscles give an unresponsive expression. It must be borne in mind that these may be, in reality, masks and bear no relation to the underlying mentality. Cerebral palsy, therefore, represents multiple handicaps in the sensory, motor, and sometimes mental fields. The treatment must take into consideration all of these fields, and their importance must be evaluated.

In the motor field alone there are four chief considerations. These are locomotion (legs),

self-help (arms), speech, and general appearance. A severe case may be unable to use the arms or legs or speak. In this case the development of speech would change the entire outlook. Even if the arms and the legs were involved, then rehabilitation of the arms for self-help is much more important than locomotion. A mild case with only facial grimaces may find it more difficult to obtain employment than one who cannot walk. In other words, the degree or severity of involvement is not an indication for or against treatment. Low mental level may not always be a contraindication either, since, if a child can be taught to walk and feed himself, a great load may be lifted from the family. The true indications practically always depend upon the individual case. Formal speech training would be of one type if deafness were the cause, another type if the trouble was based on spasticity, and still a third type if the condition were athetoid in nature. The lack of speech might also be due to true aphasia, with damage to the speech center, or to actual mental deficiency. It is usually necessary for speech therapists to have additional training in cerebral palsy if they are to obtain satisfactory results.

The treatment of *true spasticity* in connection with the extremities is largely orthopedic. Motor re-education, aided by surgery and braces, is in general quite satisfactory provided a careful evaluation is made of the distribution of the spasticity by a muscle examination. As a result of this, it will be found that there are spastic, normal, and flaccid muscles present. The relationships of these to each other are extremely important. *The determination of the proper procedure on a spastic muscle depends entirely on the condition of its antagonist.* The orthopedic surgical methods include neurectomies, tendon lengthenings, tenotomies, myoneurectomies, transplants, and bony operations—such as stabilizations, bone blocks, tibial tubercle transplants—and other related procedures. Re-education both before and after surgery is imperative.

The treatment of involuntary motion or athetosis is entirely different. Here, surgical methods are absolutely useless, unless for true contractures. The reason for this is that athetosis is not related to individual muscles but is an attempt to perform a definite joint or series of joint movements with whatever muscles are available. This can be proved by blocking out athetoid pronation of the hand, for example, by means of a brace. The

result will be internal rotation of the shoulder. The results of both muscle-nerve operations and bone stabilizations performed on athetoids have borne this out.

The fundamental principle in the control of athetosis is training in relaxation as a skill and, subsequently, training in motion from the relaxed position. The relaxation must be thoroughly learned and must be complete throughout the body. This usually takes several months to acquire, even in the hands of the most skilled teachers. The surgery that is useful is such as that on the brain cortex (Klemme), the basilar mechanism (Meyers), and the lateral columns of the cervical cord (Putnam). These procedures give some promise for the future but are still in the experimental stage.

The treatment of the ataxic group may be described as a cortical retraining to replace the damaged automatic, usually cerebellar, and other balance functions. The use of drugs is not of great importance, since their effects are temporary and disappear when the effects of the drugs wear off. Curara, apart from its difficulty with standardization, has been said to paralyze the neuromuscular junctions of athetoid muscles before affecting the normal ones. But since athetosis varies even with gravitational factors, this statement would seem untenable. Certainly, there has been no striking effect seen so far.

The barbiturates and other relaxants such as alcohol have an unquestionably excellent effect, but the swingback, when the drug effects have worn off, is usually more marked than the normal degree of athetosis. The advantages of voluntary relaxation over drugs are great.

In all cases treatment must be thorough and not hurried. As yet there are no short cuts. Graphic records of improvement should be kept on all cases treated to determine the effectiveness of the treatment given and to determine as well the prognostic possibilities of the patient. The results obtained can be gratifying in a large percentage of cases when a collaborative effort is made by all the special fields of medicine which have a bearing on the condition.

Summary

1 The cerebral palsies are a group of conditions resulting from congenital, traumatic, disease, neoplastic, or degenerative causes.

2 The most useful classification for therapeutic purposes is a physiologic one.

3 Sensory handicaps are frequently associated with the motor disturbance and are of such a nature that they are often overlooked

4 True mental deficiency is present in some cases, but this must be determined only after thorough consideration of the effects of all the motor and sensory handicaps

5 Treatment lies mainly in the re-educational and surgical fields and is effective in a large proportion of cases when carried out intensively

3038 St Paul Street

Discussion of Symposium

Dr Robert Lee Patterson, Jr, *New York City*—Dr Duryea's excellent report emphasizes the prevalence of infantile cerebral palsy as a crippling condition and the extent to which attempts are being made to meet its various needs. A great part of the progress that has recently been made in this work is due to the efforts of Dr Phelps. He has once more brought out points that tend to clarify the subject and give us a better understanding of therapeutic handling and care.

Any one of us who has had experience in the care of cases of cerebral palsy has discovered that surgery on the athetoid type is, as a rule, useless and may even prove harmful, except where definite contractures that act as mechanical hindrances have formed. Dr Phelps's explanation of the physiologic processes occurring in athetoids and spastics shows us why surgery should not be performed on the athetoid without serious consideration. Since orthopedic operations in the true spastic are helpful, often dramatically so, it is extremely important to be able to distinguish between athetosis and spasticity. Certainly, Dr Phelps has most clearly presented to us the known facts on this subject.

Advancements in the early diagnosis and treatment of cerebral palsy have been marked during the past ten years. Undoubtedly, the majority of the steps forward have been in the line of care, re-education, schooling, and appreciation of pathologic physiology. However, there has also been considerable stimulus and progress from the orthopedic surgeon's standpoint. Because of better follow-up systems, we have been able to find out the results on various types of operations and we have been able to evaluate their merits and to formulate a reasonable operating policy. Several new operations have been devised which, with the passage of time, continue to prove beneficial.

Formerly, for adducted, internally rotated thighs, we did a resection of the nerves to the adductors and a tenotomy of the adductor longus and also of the other adductors if they seemed tight. Between 1926 and 1936, 103 of these operations were performed at the Hospital for the Relief of the Ruptured and Crippled (the

Hospital for Special Surgery). In a follow-up survey, only 80 of these were classified as good, there were many recurrences. In the last five years we have been cutting the obturator nerves where they exit from the pelvis (Selg operation), not touching the adductor muscles. Out of 73, only 2 have been rated as poor, both having also a bilateral congenital dislocation of the hip.

An analysis of 85 cases that had a lengthening of the tendo achillis showed that there was a recurrence of the equinus position in 57. This operation is now supplemented by a foot stabilization or a bone block with foot stabilization. The results have been most gratifying.

An observation that has proved to be of great value to the orthopedic surgeon is that of Chandler who shows that often the transplanting of the biceps femoris into the extensor group at the knee is not successful because of the relaxation and stretching of the patella tendon and that extension would be possible if this relaxed tendon were made taut.

For the extreme case of athetosis, marked improvement and subsidence of the involuntary movements of the neck and extremities have been accomplished by the section of the extrapyramidal pathways, as performed by Dr Putnam. Although we have had no personal experience with this operation at our hospital, I have seen some of Dr Putnam's cases and results and can assure you that the procedure is a most helpful one.

On the basis of a more exact evaluation of facts regarding cerebral palsy obtained during the past ten years, we have made a grouping of the indications for performing surgery on these cases, fully appreciating the fact that surgery serves only as an adjunct in the treatment of the spastic. We have found surgery to be indicated:

1 When there is a fixed contracture or bony deformity that will obviously prevent the patient from performing exercises properly.

2 When, after a period of six months to two years, training has reached a standstill and static deformities have developed, such as a pronated forearm or an equinovalgus foot.

3 When, because of social or economic factors, the patient may discontinue treatment, refuses to wear a brace, has an uncooperative family, etc. The severe fixed deformity—flexion, adduction, and internal rotation of the thighs—which may occur as the result of such neglect should be prevented by prophylactic surgery. As late as 1937-1938 we lost 101 cases from our clinic. Of these, 73 could not even be located in New York City by our social service follow-up and 22 refused to go to any hospital, even though the visits were free.

4 When the patient is mentally deficient and the parents refuse to have him admitted to an institution, although he unquestionably belongs in one. In many instances we have performed an operation such as an obturator neurectomy in

order to separate a child's legs, relieve incontinence of urine, and make bed care at home easier for the mother. In other words, we operated for the sake of the parent.

The advancements that I have spoken of have been made possible largely by the works of such men as Drs Putnam and Phelps, and I should like, in conclusion, to say that it has been a privilege for me to discuss this symposium.

Dr J B L'Episcopo, *Brooklyn*—I want to thank Drs Duryea, Putnam, and Phelps for focusing our attention on a group of cases that has been given little attention by the medical profession, except by a few interested and enthusiastic workers of whom the essayists are representative. There is really little to discuss. All have given us fundamental facts and sound recommendations on how to handle these problems.

Dr Duryea has stressed essentially the socio-economic and educational phase and has told us how this problem should be met. I am in thorough accord with his recommendations.

Dr Putnam has brought to our attention essentially the purely neurologic management of this problem. Great progress has been made in the last few years along these lines. I feel certain that with a better understanding of the physiology and the pathology of these conditions greater progress should be made in the near future.

I think we are particularly indebted to Dr Phelps for clarifying the picture between the true spastic and the athetoid as they affect children. He has properly stressed the study of visual, oral, and sensory disturbances in these children before rating their intelligence, for the mentality of each child will determine the prognosis and treatment that should be given.

It has been mentioned that some of these patients may be treated in the outpatient department of properly equipped hospitals. Although this may have to be done for lack of facilities and practical purposes, I believe that all these patients should be treated in special institutions. At least the early part of the treatment should be given in the hospitals before

relegating the milder forms to the outpatient department. It has been stated that a minority of these spastic children have such a low mentality that treatment is practically impossible. This minority group should be placed in institutions for custodial care. Such institutions, as far as I know, are now sadly lacking in New York State. I believe that the state should provide proper institutions for these defectives.

With our present knowledge of spastics, I believe that the best classification would be one based on the physiology or according to the motor control—that is, mild, moderate, and severe. The prognosis, I believe, is good, except in the severe cases. In order to treat these patients properly, the so-called spastic must be differentiated from the athetoid type. We must also recognize the different degrees of paralysis and the possible overlapping of spastic and athetoid forms. I agree with Dr Phelps in all his orthopedic recommendations except the procedure of tenotomies, unless he wishes to destroy the action of the tight muscle involved. This is particularly to be avoided in the tendo achillis. I have seen a calcaneus deformity develop after tenotomy of this tendon for correction of equinus deformity. A calcaneal gait is much more disabling than one of equinus. We prefer to do a tendon lengthening to overcome this muscle contracture.

Finally, we should not assume a too pessimistic attitude toward these children. The great majority can be rehabilitated to useful citizenship or to a condition whereby they may take care of their own wants and not be a burden to their family or the community. This can be accomplished by a combination of proper educational and therapeutic management. The minority whose mentality is poor should be placed in institutions for permanent care. These institutions are now lacking and should be made available.

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uttered. As the physician is usually the interrogator, he should always attempt to command this advantage. The approach to each patient necessitates a variation in technique, and it is frequently important to engage the individual in general conversation before bluntly plunging into the presenting problem. Many times the alert physician obtains invaluable clues regarding the patient before a word of the individual's physical complaint has been stated.—*F A Williams, M D. A Talk on the Science and the Art of Medical Practice, Proc Staff Meet, Mayo Clinic, 15 649 (October 9) 1940*

TREATMENT OF THE HYPOCHONDRIAC

ROBERT B. MCGRAW, M.D., and ZYGMUNT PIOTROWSKI, Ph.D., New York City

IF SICKNESS insurance is forced upon the medical profession, the hypochondriac will take up considerable time and energy from the practitioner. Certain hypochondriacs are intellectually inferior, and they should be treated somewhat differently from the intellectually superior individual.

In the hypochondriacal reaction, as we for the present define it, there is great increase in self-observation, concern about the individual's health, and a change in somatic sensations. This reaction, combined with an inferior intelligence, leads to the development of complicated and variable complaints on the part of the patients. Such people usually shop around at various clinics. This, as well as the fact that they show many symptoms that cause them to be put through a great deal of expensive procedure, makes the cost of treating them quite high. They take up time that could be much more profitably spent with other patients. They are frequently querulous, easily disgruntled, and sometimes litigious. One of us (McG.) has been aware of this problem for fourteen years. The 50 patients for whom statistical data have been computed are a random sample of a larger group of patients treated at Vanderbilt Clinic.

Data

These 50 patients included 13 men and 37 women. The average age at admission to the Columbia-Presbyterian Medical Center was 32 years. On the basis of psychologic examinations,* 10 of them were of dull-normal intelligence, 12 were of borderline capacity, 21 were high-grade defective, and 7 were low-grade defective. Nine of these patients came directly to the Department of Psychiatry. The remaining 41, however, had been treated in a number of different departments for the average time of twenty-eight months before they came to the Department of Psychiatry, and during that period they had shown no improvement in symptoms and subjective complaints. The average number of departments which these patients visited in the Medical Center was 4.3 for the men and 6.8 for the women, or 6.1 for the entire group. The total

average time during which the patients received treatment was forty-seven months or nearly four years. The average time during which they were carried in the Department of Psychiatry was fourteen months.

These statistical data show the tremendous expenditure of time which these patients required without its bringing about any appreciable change in their condition.

Treatment

These people are a great burden not only to the public treasury but also to themselves and to others. There is no doubt that they need to have a person or a clinic that will maintain some interest in them. This interest, however, need not be extreme or time-consuming. Therefore, the suggestion is made here of a plan of treatment that would not only shorten the time of treatment and save a great deal of wasted energy but might also be of greater benefit to the patient.

The most important point to keep in mind seems to be that these patients need simple treatment. Complicated treatments, explanations, numerous tests, etc., are not only expensive but actually harmful, for these patients are confused and bewildered by them. It is particularly important to be careful about the introduction of physical therapy, because these patients will demand it for a long period of time, especially if it is agreeable. The chief difference between a therapeutic approach to these patients and a similar approach to patients of average or high average intelligence consists in the inability of the intellectually inferior patients with hypochondriacal reactions to follow normal reasoning. These patients need a general approach and have to be treated largely on the somatic level. They must not be overtreated. Deep psychotherapy seems to be impossible with them. Suggestions by the doctor, medication or diet, and simple explanations of hygienic measures seem to be most effective. If these patients are recognized, treatment should be centered in one department of a clinic if at all possible. Radical cures are not obtained, but amelioration and stabilization are frequent.

These patients are not difficult to diagnose. Their hypochondriacal complaints are easily recognizable, and in the vast majority of cases (if they are treated in large clinics) their records

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uttered. As the physician is usually the interrogator, he should always attempt to command this advantage. The approach to each patient necessitates a variation in technique, and it is frequently important to engage the individual in general conversation before bluntly plunging into the presenting problem. Many times the alert physician obtains invaluable clues regarding the patient before a word of the individual's physical complaint has been stated.—*F A Willius, M D. A Talk on the Science and the Art of Medical Practice, Proc. Staff Meet., Mayo Clinic, 15 649 (October 9) 1940*

her condition, and her symptoms shifted from place to place. In 1930 a Stanford-Binet showed a mental age of 7 years and 7 months, with a chronologic age of 34 years. Attention was hard to secure and of short duration. Whenever a task was presented that was too hard, she developed marked respiratory difficulty and would gasp for breath. Subsequently, it was felt by an outside agency that she could not take care of her baby and that her 9-year-old daughter made her irritable. In view of her markedly low I Q and her difficulties in adjustment, institutional care was suggested, but this was rejected by the patient's relatives.

The case came up for reconsideration four years later, at which time she complained that her head had changed its shape and that her mind was affected. She said she could not control her feelings and smashed dishes and furniture. During an interview she wept continually and complained of headache, dizziness, and loss of speech, though her voice remained steady and distinct. Another psychometric examination gave a mental age of approximately 8 years with an I Q of 53. This was done about five years subsequent to, and in general agreement with, the first examination.

This patient was treated in a great many different hospitals and in the following departments of the Vanderbilt Clinic: gynecology, otolaryngology, urology, varicose veins, ophthalmology, physical therapy, orthopedics, general surgery, neurology, and psychiatry. As far as we know she is still going to different hospitals and clinics and is receiving no particular benefit therefrom.

Case 4.—This is a case of a veteran of the World War, about 40 years of age, who is said to have been a tailor before military service. He made his first visit to the Vanderbilt Clinic in the early part of 1929, and the case was closed in 1934. His past history included an injury and an operation on his right foot when a child. He started school at 5 and stopped at the age of 9, was apprenticed to a tailor, and worked until the age of 17. He came to the United States at that time. He states that he went to night school and joined the Army when he was about 26.

He was a patient in a Government hospital the latter part of 1930 and the early part of 1931, a total of about four months. It was considered that he was a severe psychoneurotic. He complained of headache and pain in his abdomen. It was later determined that he had blurring vision, which was felt to be due to a retinitis of unknown cause. There was cellulitis of the right foot. Later in 1931 he was readmitted for a matter of about six weeks in a Government hospital and complained of pain in the right eye, headaches, and pain in the intestines. While under observation there, a phlebitis of the right leg was discovered. It was felt that he had definite retinitis of both eyes and also a severe psychoneurotic reaction. Following his discharge from the hospital he came to Vanderbilt Clinic, ap-

parently being dissatisfied with the care given him. It was here determined that he had a mental age of 7 years and 3 months, with an I Q of 51 on a 14-year base. He apparently had definite organic difficulty but also a superimposed psychoneurosis, which seemed definitely related to his defective intelligence. His eye condition improved but his mental condition remained fairly stationary. He was directed back to the Government organization for the relief and treatment of veterans, and he was closed to this clinic. Two years later a follow-up indicated that there had been no improvement but that the organization was still caring for the patient.

Determination of Mental Defect

In order to apply the suggested plan of handling these patients, it is important to ascertain whether a serious mental defect is present. A complete psychometric survey of patients of this type by a qualified psychologist is not always possible, nor is it advisable. These patients universally resent any examination that implies a mental abnormality on their part and are frequently thrown into a panic when placed in the formal testing situation. A few simple questions asked rather casually by the physician should suffice to aid in diagnosing mental deficiency. A careful analysis of the reactions of our patients would indicate that the following test questions, if failed by the patient, reliably permit the conclusion that his intelligence is markedly inferior. The questions all form part of the well-known Binet scale and have been chosen because of their selective value for this particular type of patient. The scoring of these questions, however, differs in many instances from that suggested by Terman. These changes have been made on the basis of experience with our 50 patients.

(1) *Interpretation of Fables*.—These are Aesop's fables, the same ones used in the Stanford-Binet test. The method consists in saying to the patient: "A fable, you know, is a little story and is meant to teach us a lesson. Now, I am going to read a fable to you. Listen carefully and when I am through, I shall ask you to tell me what lesson this fable teaches us." Then read the first fable and ask: "What lesson does that teach us?" It is important to make certain that the patient actually recognizes the difference between the literal and the abstract meaning of the fable. Many people have had these fables in school and have ready-made responses, the meaning of which they do not realize. It is therefore imperative to ascertain that the abstract meaning is grasped clearly. The physi-

reflect their personality plainly. The "unit history" is, therefore, particularly useful.

Case Reports

Case 1—This patient, a meek, sickly looking Jewish woman, who spent the first fourteen years of her life in her native Russia, and the next five working in a factory in England, came to the United States at the age of 19. She married soon thereafter. Economic conditions have always been difficult. The patient has always been accustomed to think of herself as unable to lead a normal active life. She has been fairly comfortable during the past few years by taking good care of herself and does not appear to resent her lack of activity. She has been greatly depressed and fears she is about to die. She feels keenly disappointed over not having children, there were no pregnancies.

The patient first came to the Vanderbilt Clinic at the age of 47 with a complaint of epigastric pain. She had had an appendectomy and a resection of a cystic ovary twenty years earlier, following which her condition had been considered cured. Five years before admission to the Vanderbilt Clinic, she had been operated on for adhesions of the omentum to the abdominal wall and had been discharged as improved. She had been complaining of pain in the epigastrium for the period since the operation for adhesions, having lost 55 pounds during this time.

A psychologic examination at the time of admission revealed a mental age of 7 years and 9 months, with a corresponding I Q of 52. She has had no schooling whatsoever. During the past five years the patient has visited nine departments in the Vanderbilt Clinic, making a total of 126 visits, not counting several hospitalizations. Among the departments visited were neurology, psychiatry, urology, surgery, and gynecology. A pelvic examination revealed a mild degree of vaginitis in the external quarter of the vagina. An x-ray of the genitourinary tract, following complaints on the part of the patient, revealed a possible stone in the right kidney, but operation was considered unwise in view of the patient's personality. The patient's gastric complaints were so persistent that she was operated on for an ulcer, which was not found. Her subjective complaints remained the same. After she had been seen by many physicians, despite the negative nature of the laboratory findings, all the nonpsychiatric departments also came to the conclusion that they were dealing with a hypochondriacal mental defective who would not be benefited by further surgical manipulations.

Case 2—This patient was known to the Neurological Institute when she was 14 years old. The complaints at that time were uncontrollable temper, throwing objects at members of the family, imagining that people on the street spoke of her as a "bad girl." It was thought that she was

a psychotic, and no treatment was given. At the age of 29 this patient came to the Department of Psychiatry, Vanderbilt Clinic, with the same complaints. She was unstable, anxious, quarrelsome, aggressive, and difficult to manage. Her condition was complicated by a chronic otitis media and a chronic pharyngitis, over which she was much concerned. The patient was treated in the departments of psychiatry and otolaryngology. In the beginning, she was seen regularly in the clinic, later, the intervals between visits grew longer. She usually presented a problem of management, becoming involved as she did in fracas with other patients. She looked upon her visits to the clinic as a treat and came whenever possible.

She underwent a psychologic test at the age of 19, following which her family was told that she had a maximum mental age of 8 years. When she was 29, her Stanford-Binet mental age was 7 years and 7 months, and the performance tests were failed even more conspicuously. At the age of 32, her Stanford-Binet mental age was 7 years and 2 months. Her relatively best achievement was fluent verbalization. The corresponding I Q's for these two examinations were 51 and 48, respectively. The patient was diagnosed as a mental defective and, because of the seriousness of the deficiency, as well as because of her uncontrollable and aggressive behavior, institutionalization was suggested to the family. Her parents did not follow this advice because they felt that the patient's symptoms were temporary. Treatment of her mild somatic condition was extremely complicated by her misunderstanding of directions. The patient continually asked for special examinations in the various departments. The resultant positive findings consisted of impaired hearing, impaired vision for which glasses were prescribed, and defective teeth, which were treated at the clinic. The patient was treated simultaneously in several different departments. She was repeatedly referred to psychiatry by the other departments because of the negative findings in the presence of persisting complaints. The patient has been coming to the Vanderbilt Clinic for nine years. Her mental condition has remained unchanged throughout the entire period. In fact, it has been the same since the age of 14, i. e., for the past twenty-four years.

Case 3—This patient on admission, an obese, 28-year-old woman, complained of pain in the back and stomach for the past four years. Menses were regular but were accompanied by abdominal pain. She had had one child and one miscarriage. There had been an operation for peritoneal adhesions one year before, a similar operation seven years before, and an appendectomy nine years before. The patient believed that she had had gallstones and that these were removed at one of these operations.

It was apparent on examination that this patient would not be able to get much insight into

2-8-3	6-5-2-8	8-1-3-7-9
4-2-7	4-9-3-7	6-9-5-8-2
9-5-8	8-6-2-9	5-2-9-4-1

The test is considered failed if the patient is unable to repeat five digits backwards correctly in three trials. It is advisable to begin with the three- or four-digit group.

Our experience has shown that if a patient fails three out of the four tests described above mental deficiency can be reasonably suspected.

180 Fort Washington Avenue

ARMY MEDICAL CARE

If a member of your family has been called for duty in the U S Army, you may have wondered sometimes as to the provisions made for taking care of the health of the soldiers in the rapidly growing armed forces.

Youths inducted under the Selective Service Act are given thorough physical examinations before acceptance in the army, and candidates for commissions as "flying cadets" undergo even more rigorous tests. So the boys in the army are a pretty healthy bunch to begin with.

And once in the service, they are provided with the best in medical attention. The *New York State Journal of Medicine* recently sent its editors on a tour of inspection of army posts and camps in this state, and the inspectors returned with high praise for the excellent medical care provided army men.

"Hospitals are adequate in size and well equipped with the most recent mechanical, electrical, and other professional apparatus," say the editors. "Drugs and other expendable supplies are well stocked. The hospitals are being conducted with well-organized services in medicine and surgery and with most of the special services, such as eye, ear, nose and throat, urology, x-ray, psychiatry, well represented."

"The staffs are in most cases up to full complement. Everywhere we observed a great alertness and enthusiasm for their work on the part of the personnel, both officer and enlisted. It is a tribute to the profession and to the high quality of their training that, considering the short length of time they have worked together, the morale, teamwork, and overall efficiency of the staffs are at once noted by the observer."

"Cases are disposed of either by admission to the hospital or return to 'quarters' or 'duty.' There is no status of 'light duty.' The army's policy is that a soldier is either fit for duty or should be hospitalized, the carrying of patients 'in quarters' is discouraged."

The editors point out that venereal disease in the army appears to be decreasing as a result of cooperation between military and civilian authorities.

The whole report seems to add up to this—the youth in the army has medical service provided for him which is just about the equal of the best and costliest obtainable in civilian life.

—*Salamanca Republican*,
Aug 6, 1941

Summary

A group of mentally defective patients is presented. It is believed to be representative of a large class and is felt to be important from the general medical, social, and economic standpoints. They present somatic complaints for which they need treatment. Treatment should be simple and objective, and radical cures should not be expected.

THE DOCTOR AND THE DRAFT BOARD

Local draft boards have received a bulletin from state headquarters of the Selective Service containing suggestions dealing with the deferment of medical doctors and interns.

The bulletin points out that the national defense program as now outlined will require 7,900 physicians for the army, 900 for the navy and 200 for public health service and Veterans' Administration, a total of 9,000 physicians in addition to the present staffs. This demand, if filled, would mean a 5 per cent reduction in the number of physicians in the nation.

In addition to the demand for medical doctors in various branches of the armed forces and public services, it is estimated that the development of new communities, increasing industrial activity, and other conditions arising from the defense program will cause a demand for an additional 10 per cent of the supply of doctors.

There is, and will continue to be during the national emergency, an increasing demand for medical doctors, the bulletin states.

It is estimated that approximately 5,000 students enter medical training courses each year and that about 3,800 physicians are lost to the profession each year due to natural causes. The headquarters charges the local boards with the responsibility of deciding whether an individual doctor should be deferred in the draft and asks that consideration be given the matter with the overall situation in mind. It also states that if the board finds that he should not be deferred because of any pressing need of his services in the community, his attention should be called to the opportunity that he has to secure a commission in the Medical Reserve Corps.

The bulletin says that since the supply of doctors must be encouraged the local boards are advised that no student or intern who gives reasonable promise of becoming an acceptable medical doctor be called to military service before attaining that status. Interns who meet the army physical standards can be commissioned in the Medical Reserve Corps and, if so commissioned, will not be called to active duty during the first year of internship. Consequently, even though a local board places an intern in Class 1-A by reason of determining that he can be spared from the community, such intern may, by becoming a member of the Medical Reserve Corps, complete his first year's internship.

cian should refrain from crediting the patient with meaning and associations which he himself has with these fables. It occurs frequently, for instance, that the defective patient will interpret the fable of the Milkmaid to mean "Don't count your chickens before they are hatched." If pressed to be more specific, he discloses that he really did not get the point at all, literally thinking of counting the chickens. If the patient fails to give the meaningful abstract interpretation of three or more of these fables, mental defect is probable.

(a) *Hercules and the Wagoner*—A man was driving along a country road, when the wheels suddenly sank in a deep rut. The man did nothing but looked at the wagon and called loudly to Hercules to come and help him. Hercules came up, looked at the man, and said "Put your shoulder to the wheel, my man, and whip up your oxen." Then he went away and left the driver.

(b) *The Milkmaid and Her Plans*—A milkmaid was carrying her pail of milk on her head, and was thinking to herself thus: "The money for this milk will buy 4 hens, the hens will lay at least 100 eggs, the eggs will produce at least 75 chicks, and with the money which the chicks will bring I can buy a new dress to wear instead of the ragged one I have on." At this moment she looked down at herself, trying to think how she would look in her new dress, but as she did so the pail of milk slipped from her head and dashed upon the ground. Thus, all her imaginary schemes perished in a moment.

(c) *The Fox and the Crow*—A crow, having stolen a bit of meat, perched in a tree and held it in her beak. A fox, seeing her, wished to secure the meat, and spoke to the crow thus: "How handsome you are! And I have heard that the beauty of your voice is equal to that of your form and feathers. Will you not sing for me, so that I may judge whether this is true?" The crow was so pleased that she opened her mouth to sing and dropped the meat, which the fox immediately ate.

(d) *The Farmer and the Stork*—A farmer set some traps to catch cranes which had been eating his seed. With them he caught a stork. The stork, which had not really been stealing, begged the farmer to spare his life, saying that he was a bird of excellent character, that he was not at all like the cranes, and that the farmer should have pity on him. But the farmer said: "I have caught you with these robbers, the cranes, and you have got to die with them."

The patient is considered to have failed this test when on further questioning he merely repeats the content of the fable, gives an inadequate generalization or a literal interpretation. Examples of the latter are "Don't drive on bad roads" to fable (a), "Don't carry

milk on the head" to fable (b), "Don't open your mouth when you are eating" to fable (c), or "Don't trespass" to fable (d). Only the following interpretations and their logical equivalents should be scored as correct: To fable (a) "Don't depend on others", to fable (b) "Don't take for granted what is a mere possibility", to fable (c) "Don't believe people who flatter you", to fable (d) "Beware of bad company."

(2) *Logical Hierarchy*—In this test the patient is required to find a generic term which would comprise all the three concepts named. Say to the patient: "I am going to name three things that are alike in some way, and I want you to tell me how they are alike."

- (a) Snake, cow, sparrow
- (b) Book, teacher, newspaper
- (c) Wool, cotton, leather
- (d) Knife blade, penny, piece of wire
- (e) Rose, potato, tree

Correct would be to give a generic term such as animals for (a), pertaining to education for (b), materials to wear for (c), metal for (d), and plants for (e). Three responses passed out of five are necessary to consider the test a success.

(3) *Absurdities*—Say to the patient: "I am going to read a sentence which has something foolish in it, some nonsense. I want you to listen carefully and tell me what is foolish about it."

(a) A man said: "I know a road from my house to the city which is downhill all the way to the city and downhill all the way back home."

(b) An engineer said that the more cars he had on his train the faster he could go.

(c) Yesterday the police found the body of a girl cut into eighteen pieces. They believe that she killed herself.

(d) There was a railroad accident yesterday but it was not very serious. Only forty-eight people were killed.

This test is considered completely passed if the patient detected the absurdity in four out of the five statements in a manner excluding doubt.

(4) *Digits Backwards*—Say to the patient: "Listen carefully. I am going to read some numbers. I want you to say them backwards. For example, if I should say 1-2-3, you would say 3-2-1. Do you understand?" When it is certain that the patient understands, say: "Ready now, listen carefully and be sure to say the numbers backwards." The digits should be read to the patient in a clear voice at the rate of one digit per second.

Partial and full body packs are also used as well as the arm bath of increasing temperature.³ The steam jet is of great value for the relief of anal spasm.³

Light therapy, especially radiant heat, is also of value to induce relaxation. Convulsive heating by means of short-wave or conventional diathermy here have broad application. Brunner⁴ applies diathermy for esophageal spasm using internal electrodes. We have used diathermy to the celiac plexus in the treatment of gastrointestinal spasm. Diathermy to the precordium is extensively used for sedative effect in the treatment of degenerative heart disease in which the relief of symptoms is sometimes spectacular. Autocondensation has long been used in the treatment of arterial hypertension. Diathermy application has also been used in the treatment of insomnia, and here the comfort of the treatment and the hum of the machine are probably the principal factors. Low-voltage currents also contribute to the promotion of relaxation. Bettmann⁵ has applied sinusoidal stimulation to the extremities and improves circulation by relieving vascular spasm. Mandelbaum⁶ has applied sinusoidal current to the esophagus for the relief of esophageal spasm. Sinusoidal stimulation has also been used for suppression of diaphragmatic spasm by treatment of the phrenic nerve. Goodman⁷ has accomplished the same end by refrigeration of the phrenic nerve.

Mechanotherapy in the form of *massage*, particularly in the form of superficial stroking, is markedly effective to produce relaxation. The role of exercise will be discussed in detail later. Stoll⁸ secures muscular and nerve relaxation by improving the posture and function of the temporomandibular joint.

Acoustic stimuli play an important role in relaxation. Following the suspension of operation of the elevated railroads in New York City there were many complaints of insomnia due to absence of the accustomed noise. However, it is our opinion that these people had been sleeping in a state of neuromuscular hypertension, but now that they rest in quiet they will get much greater benefit from their sleep when they have become accustomed to the absence of the roar of the trains. Some noises we definitely recognize as soothing, such as the murmur of a brook and the calming influence of soft music.

In the previous discussion we have shown that therapeutic relaxation may be accomplished by a great variety of the applications of physical medicine. We will now consider

active methods of producing the same result—methods in which the training of the patient plays a most important part.

Jacobson,⁹ of Chicago, has published an interesting method for producing relaxation of neuromuscular hypertension. He teaches his patient to become acquainted with the concept of tension by letting him contract certain isolated muscle groups. By consciously releasing this tension, the patient is taught the sensation of relaxation. This method has proved to be valuable in many cases. However, it is difficult to teach, and it demands long and exacting cooperation of the physician and patient. Jacobson achieves relaxation with the help of the patient's volition, which introduces the factor of mental activity. We have sought a method to produce relaxation without the conscious cooperation of the patient.

In this country and abroad much experience has been reported in accomplishing relaxation by influencing the respiratory system. It may readily be demonstrated that shallow or incorrect breathing will produce tension. Incorrect breathing affects the circulation and the sympathetic nervous system through the respiratory center. It causes tension in all muscle groups that participate in respiration, because these muscles do not relax sufficiently during exhalation. Thereby, a certain residual tension remains in these muscle groups which, reflexly, is transmitted to other muscles, particularly those of the shoulder girdle and the lower back. Here we have the inception of postural changes that ultimately will involve even the posterior muscle groups of the legs. The muscle tension thus established further aggravates the causative factors and the vicious cycle already mentioned has been established. Circulatory changes will also occur due to decreased negative pressure in the thorax, which impairs venous return.

Shallow breathing combined with impaired circulation reduces oxygenation of the blood. The tissues of the body suffer in consequence, further tension develops, and another vicious cycle has been established. From the above the importance of correct breathing becomes apparent.

Since incorrect breathing forms a link in these cycles, it would seem logical to make our attack at this point. As already mentioned the use of breathing exercises in therapy is by no means new. Crampton¹⁰ has recommended it for the treatment of arterial hypertension, to increase the mobility of the chest, to further thoracic respiration, to relieve abdominal

THERAPEUTIC RELAXATION

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IN PRESENTING the subject of therapeutic relaxation we wish to emphasize that the topic is far from a new one. It is our purpose here to review the multitude of methods that have been utilized to secure relaxation, to correlate these methods, and to establish criteria that will facilitate their more extensive application. The general conception of relaxation therapy both to the physician and the layman is some system of rest and exercise. Although this does comprise a large part of the subject, few realize that the success of many entirely different forms of treatment is secured by promotion of relaxation. Many functional and organic disorders follow a cycle or chain of events. Almost without exception one link of this chain is a condition of increased tension in some form. Breaking of this link by suitably selected and directed therapeutic relaxation is the logical course to follow.

Tone is an essential feature of all living tissue. In health a normal tone is recognized. Deviation from the normal can occur in either direction. Decrease in tone results in the state variously described as atony or hypotonia. Increase in tone constitutes a hypertensive state. It is with the latter condition that we are chiefly concerned in this presentation. We must not confuse hypotonia with fatigue, as is very well described by Rathbone¹.

The question will naturally arise as to the dividing line or normal tonus. When does muscle tone become muscle tension? When does nerve or mental tone become nerve or mental tension? No sharp point of demarcation can be established between these states because the normal tone varies with physiologic requirements.¹ However, we can recognize two extremes. A flaccid type lacking in tone and the so-called "nervous" type with abnormal tension of muscle or nerve. Between these two is the normal or optimum condition—normal muscle, nerve, and mental tone.

Deviations from the normal may be considered as primary and secondary. Primary deviations may be due to racial or individual characteristics. Some races are notoriously

"high-strung", others are definitely phlegmatic. However, individual variation is observed in which an individual may differ widely in muscle and nerve tone as compared to others of the same general racial group. Among secondary factors we must consider environment and training as the most important. Damage to nerve or muscle tissue by accident or as the result of illness or toxins, either endogenous or exogenous, must also be considered. It is the trained physician who must recognize the hypertensive state in his patient, evaluate its influence upon health and illness, and administer the proper therapeutic measures. Diagnosis at times is apparent, at other times it is obscured by a combination of functional and organic disturbances. The patient with esophageal obstruction may be suffering from the inroads of a carcinoma or he may have nothing but an esophageal spasm.² Only the physician is competent to distinguish between the functional and the organic disturbance. Even in certain organic lesions relaxation therapy is of value as an adjunct to other treatment.

Therapeutic relaxation is in far more general use than is at first apparent. Often, it is encountered in a totally unrecognized form. In reviewing briefly the various forms and applications of therapeutic relaxation, we must exclude all reference to drugs and psychotherapeutic methods, because on these alone volumes could be written. We will confine ourselves here to consideration of only purely physical methods.

Rest is a valuable means of promoting true relaxation. Unfortunately many people have a strange conception of what constitutes rest. We are familiar with the spectacle of the vacationer returning weary and far from being fit to resume his work. In ordering rest the doctor must impress his wishes upon the patient and not leave the matter to the latter's discretion. Rest as considered above constitutes a readily recognized form of therapeutic relaxation. We must now consider many forms that are not so easily recognized. The objective of many physical therapy measures is to secure relaxation. In hydrotherapy we utilize the warm bath and the continuous warm baths as frequently used in mental institutions.

the type of the shallow breather. Many, fortunately, do not complain except of perennial aches and pains which they would probably miss if they were relieved of them.

2 The second group comprises those shallow breathers who have developed definite complaints. It should be mentioned here that the normal baby is a true normal breather. This normal breathing is lost in later life for many important reasons:

- a If the baby sits up too early and develops a postural deformity
 - b Bad habit formation in preschool age
 - c During school age
- Extended periods of desk work and carrying of heavy books
- d In later life those in sedentary positions will deviate from normal breathing and even those indulging in athletics and sports may develop hypertensive states especially when in competition

The clinical symptoms observed in these individuals are headache, pains around the shoulder girdle, chest pain, sometimes diagnosed as angina pectoris or athlete's heart, and abdominal pain, sometimes diagnosed as a chronic gallbladder condition, or even an acute appendix, and treated accordingly. Low back pain with all its consequences and foot and leg disabilities too numerous to mention have also been encountered in these cases.

Following extensive study of the subject we have established a technique for our breathing exercises. We wish to express our indebtedness to physical instructor Karin Roon for her excellent cooperation in preparing this paper. We have incorporated her technique in our system of exercises which have given gratifying results.

The patient in his exercise suit is placed on a cushioned table in a comfortable dorsal recumbent position. He first exhales blowing through the pursed lips. This must be done without effort. Pursing of the lips is important as it has a remarkable effect upon the action of the abdominal muscles. The patient must now rest quietly and wait until natural inspiration occurs. This is an essential feature, and sometimes a difficult one, for the patient to master. From this point on, the instructor will do well to demonstrate to his patient by performing the correct breathing technique himself. In order to do this he naturally must be trained to do it properly. By placing his hand upon the operator's chest the patient can note the difference between the harsh intermittent breathing so often encountered and the smooth undulating breath-

ing which is so desirable. Only by this method can we quickly accomplish the establishment of correct breathing which will lead to true relaxation. Supervision must be continued until the patient senses the pleasant calm induced by the passive breathing.

When properly performed, the inspiratory wave starts at the umbilicus and spreads to the pubis. Only then does it spread upward to the costal margin and, finally, to the chest cage. Exhalation then follows with the lips pursed as before. Our breathing exercise is as simple as this. To establish complete relaxation, we must examine the patient to determine whether any muscles are embarrassed in their function because of impaired antagonist muscles. Suitable treatment must be instituted to correct this condition. Particular attention must be paid to the lateral muscle of the chest and those of the back. In many cases unusual tension of the muscles controlling the costal margin is observed. This can be remedied by suitable training to increase the lateral excursion of the ribs.

In some cases of emphysematous type or barrel chest, uneven excursion of the chest wall may be noted. Movement of the lateral portions may be excessive. Equalizing the movement of the chest cage will often clear up symptoms of cardiac involvement which, thereby, prove to have been functional.

Therapeutic relaxation as established by this simple breathing exercise has given relief in a surprising number and variety of clinical conditions. Whenever the diagnosis of neuromuscular hypertension has been established, therapeutic relaxation is indicated. The benefits are not limited to functional cases but can be obtained even in the presence of organic disturbances. Thus it is of value in the treatment of many resistant diseases such as arterial hypertension, bronchial asthma, and low back pain, to name but a few.

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stasis, and to give abdominal massage Tiralla¹⁰ also has suggested breathing exercises as an important therapeutic measure in the treatment of arterial hypertension. He has classified his patients into three groups: one group having pure hypertension with no serious demonstrable changes, another group with beginning changes in the heart, kidneys, and blood vessels, and a third group showing severe changes of the various organs. Systematic deep breathing was effective even in those cases where the heart, blood vessels, and kidneys were involved. His orthodiagraphic x-ray studies have shown that a dilated heart actually can be considerably decreased in size.

Sturm and Paffe¹¹ have followed up Tiralla's work and report that the depressor effect of respiratory exercise is detectable after several weeks or even months. Tonosphygmographic determinations showed that in essential and nephritic hypertension a fall of blood pressure and a diminution of the vascular tonus were observed after breathing exercises of a few weeks' duration. Krohne¹² has recommended breathing exercises for the treatment of bronchial asthma to restore elasticity of the thorax, which has been impaired by decreased mobility, and also influence mechanically the circulation and the abdominal organs.

Corner¹³ once said that as the brain is the organ of the mind and the center of intellectual education, so is the chest the organ of bodily vigor and the center of physical culture.

Experience has shown that we can produce relaxation by improving the respiration.

Breathing exercise, as compared with Jacobson's technic,¹⁴ may be freed from the activity of thinking. We prefer to develop the natural instinct of the individual. Every individual originally establishes his own particular breathing rhythm. It is our task to detect this rhythm and to restore it in case it has been disturbed by habit formation or by disease. We must admit that we have only limited means to describe theoretically the breathing function and the relaxation that may be produced thereby. In looking over the textbooks of anatomy and physiology we find that opinion as to the so-called breathing muscles varies greatly. Up to the present it has not been decided whether the internal intercostals are muscles of inspiration or expiration.¹⁵

Through practical experience and study of the results we have achieved with this form of therapy, we are of the opinion that there is

no fundamental difference between male and female breathing such as is described in some textbooks.

Respiration should be called normal when all muscle groups involved perform their physiologic function perfectly. They must contract and relax in coordination and must move through their full range of motion. Only a perfect change from muscle contraction to muscle relaxation will secure what we call perfect relaxation and not overrelaxation. It is of special importance that the chief muscle of respiration, the diaphragm, operates according to its anatomic structure. As compared with the diaphragm we would like to consider all the other muscles—namely, the intercostals, back muscles, etc.—as auxiliary muscles. This term should be applied to these muscle groups and not to the trapezius, sternocleidomastoid, scalenus, and the other muscle groups that usually are given this name because they work feverishly in a dyspneic condition. The diaphragm should set the rhythm for respiration, and the other muscle groups should follow its lead. In case the so-called auxiliary muscle activity should prevail, we will note what we consider distorted respiration. This type of breathing we frequently find described in textbooks as thoracic, costal, or abdominal breathing, constituting three separate ways of breathing. It has previously been thought possible for these different methods of respiration to exist simultaneously, and they also have been thought to have antagonistic effects. Thoracic breathing was supposed to be a typical female peculiarity, and abdominal breathing was considered to be typically masculine. These so-called different breathing types were applied individually for therapeutic and educational purposes (talking, singing). This teaching must cause an overdevelopment of a certain part of the auxiliary muscle groups at the expense of another part and the consequence is a restriction of diaphragm function, which in turn will cause a hypertensive state in other muscle groups as described above. It should be stated that for the same reason an overrelaxed condition may be produced, as typified by the so-called "débutante slouch."

In both cases re-education of the respiration and development of normalized breathing will remedy these conditions. Overrelaxation will be discussed at some later opportunity.

Let us here consider the consequences of shallow breathing.

1. There are individuals, probably the majority of all human beings, who constitute

PULMONARY EMBOLISM—DIAGNOSIS

JULIAN M. FRESTON, M D , New York City

THE purpose of this paper is to present 5 cases of pulmonary embolism which occurred on the Medical Service of Roosevelt Hospital within one year. Four of these cases were confirmed by autopsy. The fifth recovered. In only 1 case was a clinical diagnosis made.

An effort will be made to establish criteria by which the diagnosis of pulmonary embolism may be made with greater certainty and to call attention to other cardiorespiratory conditions with which pulmonary embolism may be confused.

Pulmonary embolism as a cause of death is undeniably important. Belt,¹ reporting on 1,990 consecutive autopsies, had found that 136 patients died with pulmonary emboli. Barnes² reported from the Mayo Clinic that pulmonary embolization accounted for 6 per cent of the postoperative deaths. I think most of us tend to consider pulmonary embolus as being particularly a postoperative accident. However, studies show that the cases are about equally divided between medical and surgical types.

The occurrence within a year of these cases in which there had been no antecedent operation has brought this problem forcibly to our attention. All of the fatal cases came to autopsy, where the association of thrombosis of the deep veins of the leg with pulmonary embolization was shown in each case.

On re-examination of the evidence it was found that certain features presented themselves at the time which would seem to have made diagnosis possible on clinical and laboratory grounds.

Certain diagnostic principles have been established by others on excellent experimental and pathologic evidence, and it is intended to use these in presenting our 5 cases in order to complete the clinical picture of pulmonary embolism. By so doing it is hoped that more accurate diagnosis of the condition may be made.

Of these 5 cases, 4 were between the ages of 50 and 55. The fifth was a Filipino of 37. One was a woman. Two had had symptoms referable to the cardiovascular system, 1 for two years and 1 for five years, auricular fibrillation was present on admission in the

latter case. The onset was sudden in 3 cases, less dramatic in the others. The chief complaint at onset was sharp axillary chest pain in 2, precordial burning pain with accompanying knifelike stabbing pain in 1, and substernal fullness in 1. Sharp abdominal pain occurred in 1. Dyspnea was present in all on or before admission. Faintness or actual fainting had occurred in 3. Pain in the lower extremities had occurred in 2, though in only 1 was it sufficiently localized to be of diagnostic aid. Hemoptysis occurred in 1, and mental symptoms during the course, in 2 of the patients.

The significance of mental symptoms, which consisted of confused and incoherent babbling in 1 of our patients and maniacal episodes in the other, should be recognized, for these symptoms and their variants are apt to lead one astray diagnostically.

The physical findings on admission included dyspnea, tachycardia, fever, leukocytosis, and cyanosis in all and polycythemia in 1. Signs such as dullness or rales were present in the chests of 3, and fluid was present in 2 of these. The blood pressure was depressed in 2 and could not be obtained in 1 whose symptoms came on an hour and a half before admission.

It is apparent that only 1 of these 5 patients was seen during the period of acute collapse, and in this patient the discovery of a tender popliteal mass led to the correct diagnosis. In the other patients shock or evidence of phlebothrombosis were absent and a clinical diagnosis was not made.

In the following case reports it is of importance to note that pulmonary embolism usually occurs as a series of emboli. The disease is one of multiple episodes. Single, suddenly fatal embolizations do occur, but in our 5 cases the duration of hospitalization was from one to three weeks and of antecedent symptoms from one and a half hours to three weeks. This feature of recurrent embolization gives us an opportunity to attempt therapy. Regarding therapy, the use of heparin for its effect on blood coagulation will probably occupy an important position. Chemotherapy when the original venous thrombosis can be assumed to be infectious—which it often is not—is probably a useful adjuvant. However, evaluation of therapy will depend

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Discussion

Dr Joseph A. E. Syracuse, *Buffalo, New York*—Dr Behrend and Dr Weiss have again contributed a manuscript that obviously reflects the results of their careful study, their keen observations, and their logical conclusions. One cannot help but agree with them that the subject is not new, but surely their mode of presentation and method of explanation is to be commended, for, after all, the subject is not one that engages our interest and curiosity as one that is entirely new.

"Therapeutic relaxation" sounds simple enough, but its implications are multifarious. If you have read or, may I say, read and reread, Jacobson's profound description of his technic in *Progressive Relaxation*, you will little wonder why Drs Behrend and Weiss turned to a simpler and more practical method of securing therapeutic relaxation. Jacobson may have excellent results under his own personal guidance and instruction. The average physician will understand and interpret such terms as "general," "local," and "differential relaxation." And we may also comprehend such terms as "residual tension," "the cultivation of muscle sense," "diminishing tension," "tensions and strains," and "moving and static tension"—but will he succeed in transmitting his wishes to the average patient? Will he succeed in receiving the desired response? As Drs Behrend and Weiss state, his method "is difficult to teach and it demands long and exacting cooperation of the physician and patient" and, also, "introduces

the factor of mental activity." I am afraid that the average patient we see in our office is not, as yet, quite prepared to cooperate in receiving that caliber of therapy.

The simpler method, as just read to us, is based on "accomplishing relaxation by influencing the respiratory system." I am glad to note in their explanation recognition of the potential formation of a vicious cycle, to recapitulate (1) shallow or incorrect breathing, (2) respiratory muscle tension, (3) circulatory disturbance (alteration of the carbon dioxide balance), (4) sympathetic nervous system irritability, (5) muscle group tension, (6) residual tension, (7) reflex transmission of residual tension to muscle groups, (8) postural changes. All of which brings us back to shallow or incorrect breathing, respiratory muscle tension, etc.

The sequelae of this cycle are many, as has been enumerated. We all know how many times worried and weary mothers bring to our offices youths whose posture is such that they are sure that "Johnnie" has "tuberculosis," "rheumatism," "is developing a hunch back," "has a dislocated shoulder," "is knock-kneed," "has fallen arches," is "lazy," or "has sleeping sickness," etc., all of which can easily be corrected by proper guidance in corrective exercises, especially that of breathing.

I for one shall employ this technic of Drs Behrend and Weiss whenever indicated. It may be the answer to several puzzling problems in the past.

I should like to congratulate the authors on their most illuminating and delightful paper and wish to express my sincere thanks in having been extended the opportunity to discuss—or should I say endorse—their presentation.

HEALTH IN ARMY CAMPS

"Excellent medical care" is the finding, in three words, of the Medical Society of the State of New York, following a survey of New York State army posts and camps.

Of interest to veterans of the World War is the news that "light duty" is out. A man is either sick or well, but is no longer marked for light duty. It is a welcome change, for many a man in world war camps suffering from "flu" or a heavy cold was forced to work about his barracks.

The survey is a constructive service to the people of the state, many of whom have boys in camps. Carried out with the full cooperation of military authorities, it was made impartially by experts, assuring a sound and experienced report.

It gives full assurance that the health and welfare of the men in service are receiving the best kind of attention.

—Syracuse Post Standard,
Aug 3, 1941

BARGAIN DAY IN THE NEXT WORLD

A few weeks ago an artist was employed to renovate and retouch some oil paintings in an old church, and when he sent in his bill for \$26 87 he was told that an itemized bill was desired.

He accordingly submitted the following

For renewing Heaven and adjusting the stars	\$ 7 12
For touching up Purgatory and restoring the lost souls	3 06
For brightening up the flames of Hell, putting a new tail on the Devil and doing odd jobs for the damned	7 17
For putting a new stone in David's sling and arranging Goliath's head	6 13
For mending shirt of Prodigal Son	3 39
	<hr/> \$26 87

—Journal of Allergy

The patient was an obese, dehydrated woman with blue mottling over her chest and extremities. Her heart was rapid but otherwise not noticeably abnormal. Her lungs were clear and there was slight tenderness over the right upper quadrant. There was slight pretibial edema. The admission diagnosis included questionable glomerulonephritis, questionable impending uremia, and questionable gallbladder disease. The urea nitrogen determinations during her hospital stay were 25, 8.6, and 10.5 mg per hundred cubic centimeters.

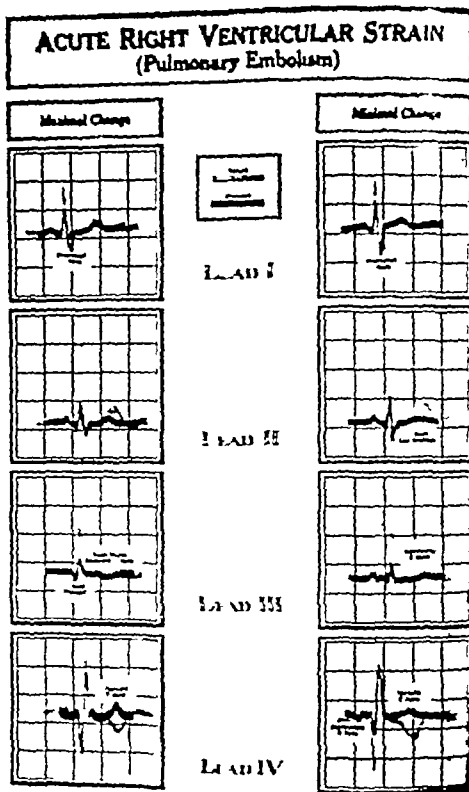
The respiratory rate increased steadily, and a terminal tachycardia occurred. The patient died on May 6. The electrocardiogram, which was considered to represent atypical posterior wall infarct, included all the features necessary to make a diagnosis of pulmonary embolism. The most prominent symptomatic feature was abdominal pain for which no cause could be found either during life or later at autopsy.

Case 5—A. C., a man aged 37, was admitted on June 17 complaining of shortness of breath for three weeks and fainting spells for two weeks. For three years the patient had had migrating pains in the ankles, knees, and hips. These joints swelled up one at a time and became tender and painful. He had also had burning precordial pain with occasional knife-like pains that did not radiate. Three weeks before, while at rest, he became short of breath. During the past two weeks he had become dizzy and on several occasions fainted when he tried to get out of bed. His left leg became swollen, and both feet felt continually cold. He was conscious of palpitation, and precordial pain was constant. He had been orthopedic for the past two weeks.

On admission the patient was cyanotic and breathing rapidly. The pulse was 150, but no definite cardiac abnormality could be made out. There was slight dullness in the right axilla. The diagnosis on admission was right lower lobar pneumonia because dullness and harsh breathing were found at the right base. Fleeting signs consisting of dullness and a few rales were heard from time to time on both sides of the chest. However, dyspnea was the most prominent feature throughout, and the patient died suddenly on June 22. The electrocardiogram showed the typical changes associated with acute *cor pulmonale*, and the chest x-ray demonstrated a prominent *coronarius*.

These cases were reviewed and an effort was made to see if laboratory evidence could be used to supplement the clinical findings and thus permit us to arrive at a correct diagnosis.

In 1935 McGinn and White,² and shortly afterward Barnes³ of the Mayo Clinic, published their independent observations on electrocardiographic findings which they considered diagnostic of pulmonary embolism.



From Barnes *Electrocardiographic Patterns*. Courtesy of Charles C. Thomas Publisher, Springfield.

FIG 1. Reproduction after Barnes showing diagrammatically electrocardiographic changes found in pulmonary embolism. Note lead IV reversed from lead IV F used in accompanying illustrations.

The following is a list of the changes described by these authors:

1. Prominent S_1
2. Low origin of the T in lead I
3. Staircase ascent of ST in lead II
4. Inversion or flattening of T_2 without elevation of ST₂
5. Presence of Q_3
6. Inversion of T_3
7. Inversion of T_4

Fig 1, taken from Barnes,⁴ represents in diagrammatic form the typical electrocardiographic changes—note that old lead IV is reversed from lead IV F, now more commonly used. Figs 2, 3, and 4 represent serial changes in 1 patient occurring over a period of fifteen days.

on accurate diagnosis of the original condition and will develop most rapidly in those clinics where accurate diagnosis of embolization is stressed.

Case Reports

Case 1—K. P., a man aged 51, was admitted on August 5 with a complaint of substernal fullness and a feeling of faintness of one and a half hours' duration. These sensations had come on while the patient was at rest and had increased progressively until he was brought to the hospital. Two days before admission he had developed a pain in the left leg between the knee and ankle and had noticed a tender lump in the popliteal space.

On admission the patient was pale and apprehensive, with ashen lips and rapid, shallow breathing. Heart sounds were distant and the rate was 120. His blood pressure could not be obtained. His lungs were clear. There was slight swelling of the left leg and a palpable mass in the popliteal space. The admission diagnosis was thrombophlebitis of the left popliteal vein and pulmonary embolism with question of coronary occlusion. In the hospital he had several more attacks, consisting of shortness of breath and coughing. After one particularly severe episode there was chest pain, and a friction rub was heard over the left lower lung field. One morning, three weeks after admission, while shaving in bed the patient became ashen gray and expired immediately.

The diagnosis in this case was made on the presence of thrombophlebitis, changing lung signs, and dyspnea. In addition, the electrocardiogram on one of three examinations and the chest x-ray studies were diagnostic.

Case 2—R. A., a man aged 51, was admitted on February 12 with a chief complaint of pain in the right side of the chest for two weeks and in the left side of the chest for three days. Two weeks before admission he had developed an aching and stabbing pain in the right axillary region which was constant and was accentuated by deep breathing and coughing. Ten days later this pain disappeared but was followed by the same sort of pain in the left side of the chest in the axillary line. In the past three days there had been coughing with hemoptysis. He was dyspneic "because of pain on deep breathing."

The patient appeared feverish and exhausted. His pulse was 100 and his blood pressure was 120/80. His heart was normal, and on the right side of his chest there was dullness to flatness at the right base posteriorly and in the axilla. Egophony and fine rales were present over the right base.

The diagnosis on admission was right lower lobar pneumonia, right pleural fluid, and early left lower pneumonia. Long chain streptococci were found in the sputum but no pneumococci. Later cultures from the sputum showed *Streptococcus hemolyticus* and *Staphylococcus aur-*

eus. No growth was obtained from the chest fluid. There was no evidence of tuberculosis in an injected guinea pig. Three weeks after admission he complained of pain in the right calf, which lasted two days and was diagnosed as thrombophlebitis. The connection between this and the pulmonary signs was not then appreciated. After a febrile course with multiple thoracentesis and gradual improvement in the pulmonary signs, the patient was able to leave the hospital on April 13.

Diagnosis could have been based on the thrombophlebitis, the variation in lung signs, and sterile effusion. Confirmation is based on x-ray findings, particularly evidence of linear scarring.

Case 3—P. H., a man aged 58, was admitted on May 7 complaining of dyspnea for seven days and pain in the left side of the chest for from four to five days. There had been dyspnea on exertion for from four to five years, but one week before admission this had been increased. Four or five days before admission he had noticed gradually increasing pain in the left costal margin, which was increased on movement and exertion. He had been orthopneic for two nights and had noticed edema of the ankles for one day.

The patient was cyanotic and orthopneic. His heart was markedly enlarged to the left, rapid, and totally irregular. There was splitting of the left side of the chest with signs of fluid at the left base and moist rales at both bases and in both axillae. There was pitting edema of both legs and ankles. Admission diagnosis was auricular fibrillation and hypertensive heart disease with congestive failure, coronary thrombosis was to be ruled out. Left thoracentesis was performed, and 1,100 cc of fluid was obtained on the day after admission. The patient's course was febrile, and there were several hallucinatory and almost manic episodes. Dyspnea was prominent throughout the course, and the patient died on May 16.

Diagnosis would have been difficult. The bilateral venous thrombosis produced edema, which was explained on the basis of cardiac failure. Pulmonary findings and x-rays were confused by pulmonary congestion, and the electrocardiogram was not diagnostic. However, the episodic nature of the course should have suggested the correct diagnosis.

Case 4—T. G., a woman aged 55, was admitted on April 25 with a complaint of sharp lower abdominal pain for three days. The patient had been known to have high blood pressure for two years and had been dyspneic when climbing stairs for one year. Five days before admission, while brushing teeth, she had fainted and had had a profuse watery bowel movement. She fainted again when she tried to walk. The patient had an insatiable thirst all that day and the next and had been noticeably weak and irritable since the onset. For the past three days she had intermittent severe lower abdominal pain, which was worse on coughing.

3 The triangular-shaped shadow if it occurs—as at the lower lung borders—has its apex distal rather than central

4 Long axis of an infarct is parallel to the longest pleural surface involved

5 The proximal border of an infarcted area is convex

6 Multiple areas of infarction are frequently superimposed, producing shadows that are round or irregular, which makes interpretation difficult

7 Fluoroscopic or oblique x-ray examination will demonstrate aeration between the multiple shadows and the contact of each with the pleura

In addition, the hilus shadows on the affected side are usually accentuated, and the diaphragm is frequently elevated. Again, confusion is produced by the presence of fluid and of pulmonary congestion, either of which masks the x-ray findings. Figs 5 and 6 represent serial x-ray changes in 1 case. Healing results in linear scarring visible by x-ray and considered diagnostic by the above authors.

We must recognize that pulmonary embolization with or without infarction is a fairly common medical condition, often unrecognized when the primary venous thrombosis is not obvious. Recognition of the venous thrombosis is often extremely difficult. In this connection it is of interest to note that thrombosis of the popliteal veins—unilateral in 3 cases, bilateral in 1—was found at autopsy in all of the fatal cases. Edema was either absent, slight, or considered to be due to the primary cardiac condition. Diagnosis can more frequently be made if the condition is considered, particularly in persons over the age of 50.

It is realized that x-ray interpretation of films that must, of necessity, be made at the bedside is difficult. It is also important to remember that the electrocardiographic changes may be fleeting, and serial examinations are often necessary. However, properly used in conjunction with the clinical findings, these aids can be useful diagnostic adjuncts.

Summary

1 Five cases of pulmonary embolus which occurred within one year on the medical service have been presented.

2 Four of the cases were fatal, and the diagnosis was confirmed by autopsy in all.

3 In all of the fatal cases thrombosis of one or both of the popliteal veins was found at autopsy.

4 Electrocardiographic changes diagnos-



Fig 5 R.A. X-ray of chest shortly after admission showing marked changes in lower right lung and obliteration of left costophrenic sinus



Fig 6 R.A. X-ray taken five weeks later showing several areas of increased density in the right lung probably indicating multiple areas of infarction. Note there is clearing of the left costophrenic sinus suggesting that infarction in that area was incomplete

tic of pulmonary embolism were present in 3 of the cases

5 X-ray changes helpful in making the diagnosis of pulmonary embolus were reviewed

6 An attempt was made to correlate clinical and laboratory findings that might lead to more accurate diagnosis of pulmonary embolus

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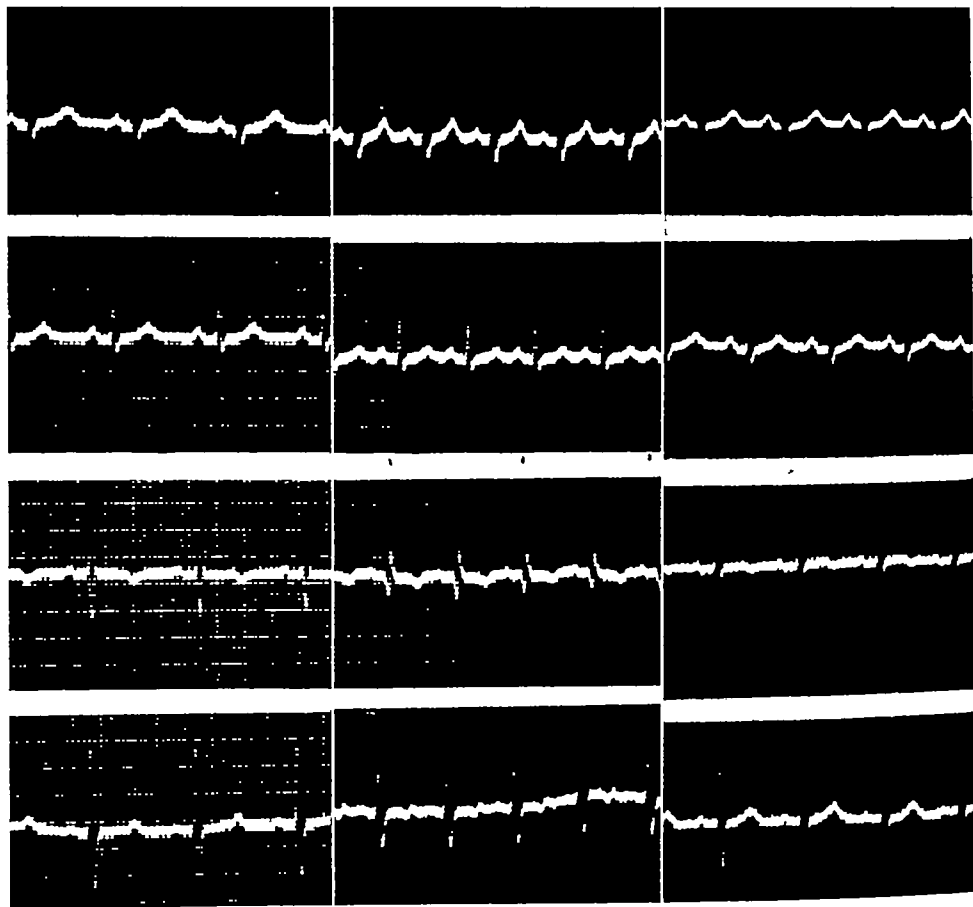


FIG 2

FIG 3

FIG 4.

FIG 2 K P Electrocardiogram taken on day of admission showing none of the diagnostic changes

FIG 3 K P Electrocardiogram taken three days later showing all diagnostic changes

FIG 4. K. P Electrocardiogram taken sixteen days after admission showing no change except left axis deviation

Two of the patients had single electrocardiograms that were not diagnostic. It is important to appreciate that the presence of characteristic electrocardiographic changes depends on the production of cor pulmonale—that is, on metabolic changes in the right and possibly the left ventricle. It is possible that, if clinical collapse does not occur, the electrocardiogram will remain within normal limits. It must also be remembered that these changes may be temporary. On the other hand, conditions that produce right ventricular strain, mitral disease, pulmonary emphysema, etc., also produce similar electrocardiographic changes and must be ruled out on clinical or other grounds.

It is probable that the shifting character of the electrocardiogram is the most significant diagnostic feature. In any case, the limitation of the electrocardiogram must be recognized and given due consideration.

The x-ray diagnosis of pulmonary infarction also presents its problems. Jellen⁵ in his article and Castleman and Hampton⁶ in another study present us with some useful concepts and diagnostic criteria. A list of these follows:

1. Infarcted areas are always in contact with one or more pleural surfaces, usually at junction of two surfaces.

2. The shape of the infarct is dependent on the shape of the area of lung involved.

POPULAR EDUCATION AS A FACTOR IN THE SOLUTION OF THE CANCER PROBLEM

JOHN M. SWAN, M D , F A C P , Rochester, New York

IN 1926 the American Society for the Control of Cancer invited representative students of the cancer problem from the United States and Europe to attend an International Symposium on Cancer at Lake Mohonk in September. This conference was attended by 109 delegates.

The European delegates came from Belgium, England, France, Germany, Holland, Italy, and Switzerland. From this side of the ocean delegates from Canada were present in addition to those from the United States.

At the conclusion of the four-day meeting a resolution was passed which "expressed the unanimous opinion of the Symposium upon a list of practical facts and sound working opinions which should serve as the basis of the campaign which mankind should make against cancer." This resolution contained the following paragraphs:

"3 The control of cancer, so far as this subject can be understood at the present time, depends upon the employment of measures of personal hygiene and certain preventive and curative measures, the success of which depends upon the intelligent cooperation of the patient and the physician.

"4 Persons who have cancer must apply to competent physicians at a sufficiently early stage in the disease in order to have a fair chance of cure. This applies to all forms of cancer. In some forms early treatment affords the only possibility of cure."

"7 The public must be taught the earliest danger signals of cancer which can be recognized by persons without a special knowledge of the subject, and induced to seek competent medical attention when any of these indications are believed to be present."

"14. Emphasis should be placed upon the value of the dissemination of the definite, useful, and practical knowledge about cancer, and this knowledge should not be confused nor hidden by what is merely theoretical and experimental.

"15 Efforts toward the control of cancer should be made in two principal directions:

(1) The promotion of research in order to increase the existing knowledge of the subject, and (2) the practical employment of the information which is at hand. With our present knowledge many lives could be saved which are sacrificed by unnecessary delay."

Answer to the Criticisms of a Program of Popular Education

Based upon these principles the New York State Committee of the American Society for the Control of Cancer, which was formed in 1921, inaugurated a state-wide educational program, directed primarily to the laity. During the development of this program, the Committee discovered certain objections on the part of some members of the medical profession who maintained that, as we do not know the cause of cancer, we cannot control it, that we have no cure for cancer and, until we do have a cure, cancer cannot be controlled, that a discussion of cancer to groups of lay people will produce "cancerphobia", and that a program of public education is attended with the danger that "ballyhoo" methods will be an unescapable result.

Concerning the first criticism, it may be said that, from the point of view of the attack on the problem, we know enough of the cause of cancer to develop a program of control. We know that cancer follows the prolonged action of carcinogenic agents upon the tissues. These carcinogenic agents may be physical, such as prolonged exposure to strong sunlight, or the emanations from radium or roentgen rays, mechanical, such as the irritation of the sharp edges of cavities in necrotic teeth, chemical, such as tar, dibenzanthracene and decomposed retained secretions, the products of the growth of bacteria of low virulence, and thermal.

Concerning the second criticism, it was maintained that yellow fever and malaria were controlled when the cause was discovered. However, it must be realized that cancer is not a transmissible disease like malaria and yellow fever. That cinchona bark was used by the Peruvian Indians as a cure for malaria and was introduced into Europe in 1640, while Laveran did not discover the *Plasmodium malariae* until 1880. Furthermore, the method of transmission of yellow fever by the

Read at the Third International Cancer Congress
Atlantic City, New Jersey, September 11, 1939.
Executive secretary of the New York State Committee
of the American Society for the Control of Cancer.

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NEW PORTABLE TRANSFUSION KIT ANNOUNCED

A new portable emergency dried plasma transfusion kit that can be set up and used at or near the site where the injury occurs, is described in the *Journal of the American Medical Association* for June 21 by Dr John R. Upton, B E Emery, M S, and R. B Clark, San Francisco

"In these grim days," the authors say, "the need for some foolproof dependable transfusion outfit which can be set up by any doctor or well-trained nurse and utilized at or near the site where the injury occurs is of tremendous importance. Army, navy, air force, and even civilian casualties now can be treated immediately by drawing on supplies in strategically placed depots. Experience in the present war has already shown the urgent need for plasma transfusion in shock, burns, and hemorrhage. If transfusion is delayed, inevitable and irreversible changes occur in a large proportion of cases."

The kit contains the residue from 250 cc of liquid plasma, which, on reconstruction with sterile water, would be equivalent to 250 cc of "wet" plasma or 500 cc of whole blood. The dry plasma is contained in a 500-cc vaccine sleeve type rubber stoppered bottle which is hermetically sealed in a snug-fitting tin can. Cotton wool is tamped snugly about the base and neck. The tin can is 3 1/2 inches in diameter and 8 inches tall.

There is a 500-cc calibrated dispenser bottle of sterile water which is fitted with the new type sterile cap that ensures sterility after bottling and prevents contamination during administration. The authors explain that the sterile water is contained in the kit because of the fact that water is extremely difficult to sterilize and equally hard to keep sterile.

Also contained in the kit are an intravenous needle, a rubber tubing of Y design, a mechanical filter, and drip chamber, and a needle attached to the other short arm of the Y tube. This is packed in a sterile manner with the needles being protected by inclosure in a test tube. This segment is united, sterile, and ready to use. There also is contained in the kit a spinal type needle with stylet in a sterile test tube.

Explaining the method of administration, the authors say "The corrugated cardboard container is slit open with a knife along the designated line. The contents are removed and, if no table is available, the cardboard box can be up-ended and used for a table. Any improvised stand can be used to suspend the bottles, on board ship or in a hospital ward these are always available. If no such stand is available because of an exposed position, use can be made of a sapling, a tent stake, or even a gunstock with

the bayonet stuck firmly into the ground. The rate of flow can be accurately gaged by the turn-screw pet cock, so that the height of the object used to suspend the bottles plays little role except for support. The tin can is carefully opened by the usual type of can opener, but care is needed to make sure the can is opened at the designated end to avoid damage to the glass bottle."

When the patient has been made ready for the transfusion the needle attached to the short arm of the Y tube is inserted just through the stopper into the powder plasma flask and the glass nozzle at the other end of the Y tube is inserted through a designated hole in the rubber cap of the sterile water bottle. The spinal type needle is then inserted alongside the needle already piercing the rubber stopper of the dry plasma flask. This needle is to break the vacuum in the bottle during the reconstruction process. The tube running into the recipient's needle is clamped off with the screwcock and the bottle containing the sterile water is up-ended so that its contents flow into the bottle containing the dry plasma. The dry plasma or serum will dissolve in a few seconds. When the plasma is completely dissolved both bottles are up-ended and some water is allowed to run through the tubing, and the air bubbles therein are eliminated by raising and lowering both bottles several times. The apparatus is then ready for the transfusion.

Discussing the kit the three men say "It will adequately meet conditions imposed on it by modern warfare. It will fill a long-standing need in civilian life and practice, smaller hospitals, emergency stations, fire houses, industrial factories, oil refineries, and forestry outposts should keep such a kit or kits in their emergency lockers. Armed forces ashore and afloat will require large numbers of these or similar kits. They will enable transfusion therapy to be moved to more advanced positions in actual warfare, smaller vessels will have transfusion facilities for their wounded. Gun flash, explosion, and incendiary bomb burns will now be treated in the first critical hours.

"The financial cost of these kits is small when the lifesaving properties are considered. The federal government may find it advisable to produce and dispense such units. Our civilian population must realize that its part in the national preparedness program will be to supply blood voluntarily for national defense needs, thus at the least it can do to pay for its protection. Such a widespread program would guarantee a constant and adequate supply of dried blood plasma."

MATERIAL FOR MEDICAL WAR HISTORY

Southwestern Medicine invites physicians of the southwest who enter military service to write

letters telling of their impressions and experiences for publication in its pages.

We should point out the fact that complete destruction of the growth must be accomplished and that, in the present state of our knowledge, surgery and irradiation with radium, x-rays, or a combination of these agents are the only reliable methods for the accomplishment of the destruction.

We should attempt to disabuse the minds of the laity of the erroneous popular notions concerning cancer—such as statements that cancer is the result of eating tomatoes, drinking milk, eating pork, the use of aluminum cooking utensils, the employment of artificial refrigeration—and of the notion that cancer is a shameful disease, that it follows a single injury, and that it is transmissible. At the same time we should emphasize the fact that absence of pain is no criterion that cancer has not already begun.

Until the mechanism of the inheritance of the susceptibility to cancer in the individual exposed to the action of a carcinogenic agent is thoroughly understood, we should assure the laity that, in the human family at least, cancer is not directly inherited.

An attempt should be made to point out to the layman that he must present himself to a competent physician for examination when the symptoms mentioned above are noted. It is a personal problem, no one can act for the individual.

One of the first objectives in a cancer educational program, after the elimination of the fear of hearing the matter discussed, should be to show the layman indisputable evidence that cancer can be diagnosed and properly treated in his own community. To that end, we have carried on in Rochester for the past eight years an investigation designed to show that there are patients who have had cancer, who have been adequately treated in the hospitals in the city, and who have survived without recurrence for five years or longer.²⁰

We have a record of 298 cases of five-year survivals, 73 of which are ten-year, eleven-year, and twelve-year survivals. In the latter group there are 4 cases of gastric adenocarcinoma. In every one of these cases the histologic slides have been reviewed by three competent pathologists, and all have concurred in the original diagnosis. If we had included the cases of basal-cell carcinoma of the skin treated by the dermatologists, in which no histologic slide was available for review, and if we had included cases in which two of the pathologists agreed to one who disagreed with the histologic diagnosis, our list could have been much larger.

The Concurrent Educational Program Directed Toward the Medical Student and the General Practitioner

On the other hand, there is a definite necessity for the training of physicians to look with suspicion upon those symptoms that indicate the presence of pathologic processes that may become cancer. In too many instances the delay in insisting upon biopsy and the use of temporizing methods of treatment are discovered in the study of the anamnesis of individual cases of cancer.

Cramer²¹ says "Perhaps the greatest difficulty (in the solution of the cancer problem in man) is the unjustifiable pessimism which pervades the medical profession concerning cancer. We are still being told by distinguished clinicians that cancer is a mystery, that we know nothing about cancer, and that we must wait until the cause of cancer is found—whatever that may mean—when the cure for cancer will automatically follow, which is by no means true."

Opinions of Authors of Papers Appearing in the Medical Periodical Press

Hartman,¹⁰ discussing the treatment of cancer of the rectum, advocated the education of the public and the physician. He said that the surgeon ought not to have patients referred to him who have been treated medically for "months and months" without having had a local examination which is "so simple, so useful, and so often neglected."

Bloodgood,² a pioneer in the advocacy of the education of laymen, says that the value of the education of the public and of the profession in the importance of early and accurate diagnosis, skillful surgery, and accurate radiotherapy is well known.

Spies¹⁹ is of the opinion that cancer education has increased the number of people who present themselves to physicians for benign lesions and early new growths.

Guggisberg,⁸ in discussing cancer of the uterus, says that the practicing physician can do much to secure early examination and early diagnosis. Often the influence of one woman upon another is of great value in securing prompt pelvic examination.

Cramer²² says that the only method available at present to reduce cancer mortality is the educational program for early diagnosis.

As a result of the anticancer campaign in Sweden, Forsell⁶ says "It is wise to leave the matter of anticancer education to the various anticancer societies which wish to help in

mosquito was worked out in 1898-1899, while Noguchi did not isolate the *Leptospira icteroides* until 1918, and that today the causative relation of that organism to yellow fever has been discarded by the research scholars, and yellow fever is believed to be a virus disease.

The critics also pointed out that tuberculosis was controlled when the cause of tuberculosis was discovered. However, the *Bacillus tuberculosis* was isolated in 1882 by Koch, but it was not until 1903 that the present method of tuberculosis prevention was developed by Trudeau and his pupils.

Again, vaccinia will control smallpox and we do not yet know the cause of either, unless they also prove to be virus diseases.

In relation to the criticism that we have no cure for cancer, it may be pointed out that the removal of a tumor from the female breast which proves, on microscopic examination, to be the result of a chronic cystic mastitis in which there is an area of cancerous change and if the removal is followed by the survival of the patient for five or ten years or more without recurrence, it would seem legitimate to claim that such a cancer had been cured. Furthermore, in patients who present lesions of the cervix of the uterus which prove, on microscopic study, to be examples of chronic cystic cervicitis or other low-grade inflammatory change of the tissues of the cervix and in which, after suitable treatment, subsequent examinations show an absence of the development of cancer, it seems legitimate to conclude that cancer may have been prevented.

In this connection the observations of Pemberton and Smith¹³ would indicate that cancer can be prevented. They reported follow-up studies of 3,814 patients in whom trachelorrhaphy had been done in only 5 of which cancer developed later, 1,408 patients in whom cervical cauterization had been done, none of whom developed cancer, and 740 patients in whom cervical amputation had been done, none of whom developed cancer. On the other hand, in 669 cases of cancer of the cervix only 12 had had trachelorrhaphy and none had had either cervical cauterization or amputation of the cervix. Later, Bartlett and Smith¹ reported a follow-up study of 1,700 patients in whom cervical cauterization had been done with no subsequent development of cancer.

Concerning the third criticism, it is our experience that an educational program does not produce fear. The fear already exists. Discussing the question brings it to the surface, so that frequently it can be dispelled by

reassuring the patient who is able to control his emotions.

Meigs¹² says that it is of extreme importance that women be induced to accept treatment when there is some hope of cure. This can be accomplished best through educational methods, appealing both to the laity and to the medical profession. Cancerphobia often results, but the good that the education does far surpasses its harm.

The only answer to the criticism that "ballyhoo" methods will be adopted is that so long as an educational program is controlled by physicians such methods are not likely to be adopted. Once the program is under the control of laymen, no matter how well intentioned they may be, there is real danger that inaccurate and extravagant statements may be made and that the objects of the program may be nullified thereby.

The Matters to Be Discussed at Meetings of Lay People

We should be ready to tell laymen and laywomen that chronic sores that do not heal readily, particularly if they are situated about the body orifices, that tumors, particularly breast tumors, that pathologic discharges from the hollow viscera, particularly if they are bloodstained, that disturbances of digestion occurring without demonstrable cause in persons in late middle life and early old age, and that melanomas, situated where they can be irritated by the clothing, are the symptoms that may point to the beginning of cancer. However, we should tell them that these symptoms do not mean that cancer has already developed but that they do indicate the existence of tissue changes in which cancer may develop. Furthermore, they should be told that these symptoms demand careful and well-planned study and that the lesions discovered should be suitably treated and cured.

We should be ready to explain to audiences of lay people, in language they can readily understand, that cancer is the result of the prolonged action of a carcinogenic agent on a definite tissue over an extended period, occupying a considerable fraction of the normal span of life characteristic for the species (Cramer¹⁴). We should emphasize the fact that cancer can be cured if it is diagnosed before metastasis has begun and that, even though metastasis has commenced but has not passed beyond the regional lymph nodes, a cure may be obtained—at least the patient may survive long enough to die of trauma or of a disease that is not cancer.

New Orleans between 1932 and 1936 Of these, 256 were Negroes (53.22 per cent) Of the negro patients, 60.0 per cent presented regional lymph node metastases when first seen Of 224 cases in which the records were adequate, 118 were considered suitable for radical operation (52.67 per cent) "These facts are a challenge to the profession to continue their efforts to educate the public"

Cramer^{5b} is of the opinion that "cancer is, unfortunately, a sensational disease, but the prevention of cancer is unsensational work The physicians who prevent a hundred cases of cancer have less evidence to establish their success than the surgeons or radiologists who cure five, nor will they get for their achievement any credit or financial reward The results of prophylactic work will become evident only after many years by a careful analysis of the national mortality statistics We need an educational program among medical men to establish in their minds the conviction that cancer is largely preventable and that every effort should be made to prevent it"

In his discussion of the cancer problem MacCarty¹² quotes Lounsbury who said "The longer I teach the more I am impressed with the infinite capacity of the human mind to resist the introduction of knowledge"

BLOOD PLASMA FROM CASEIN?

The possibility of using casein, a common ingredient of milk, as a means of building up the blood plasma of persons weakened by wounds, operative shock, or malnutrition has emerged from experiments at the University of Rochester

The studies were reported by a group of seven scientists including Dr George H Whipple, dean of the university's school of medicine The experiments were conducted on dogs, just as were those done in past years by Dr Whipple which led to a cure of pernicious anemia in humans and brought him a share of the Nobel Prize in physiology and medicine in 1934

Dr Whipple's collaborators in the present study were Dr S C Madden, L J Zeldis, Dr A D Hengerer, Dr L L Miller, A P Rowe, and A P Turner

A report in the *Journal of Experimental Medicine*, as quoted in the *New York Times*, describes the work Dogs were kept healthy for many weeks and in some instances gained weight, even though their diet was kept low in proteins and precious plasma proteins were repeatedly drained from their blood This was made possible by injecting into their veins a digest of casein, the milk protein The Whipple group concluded that the animals were able quickly to convert the casein digest into blood plasma

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Casein is a cheap and common ingredient of milk, found in concentrated form in cottage cheese A white powder, it is commercially used as a carrier for pigments in paint, as sizing in making smooth paper, for glues, adhesives, and pastes Highly purified forms are used by scientific laboratories in animal feeding tests For introduction into the blood in the Rochester experiments, the pure casein was predigested with papain, an extract of tropical fruit, papaya

Although cautious in applying their finding to the question of aiding the war wounded and operative cases, the Rochester experimenters called the attention of the medical world to the advantages of casein digest, in cheapness and ease of handling over the use of stored human plasma

"Perhaps it is not for us to debate clinical problems," they said, "but we may mildly suggest that the experiments designed to study plasma protein production do have a bearing on the many-sided problem of shock as well as clinical hypoproteinemia (lack of proteins in the blood)"

If the body can be aided in producing new plasma proteins, this procedure may be as valuable as the administration of plasma by vein."

combating the disease. The official organizations for social work, the insurance companies, and the societies for sick benefits should find a special mission here. Informing the public about cancer without provoking an exaggerated fear is a task in the anticancer campaign which is as delicate as it is important. However, a number of physicians who have had experience with this subject are of the opinion that the thorough instruction of all physicians, as well as all those persons occupied with the care of patients, such as dentists, nurses, and midwives, concerning the early symptoms of cancer, is of more importance than the direct education of the public."

Ward²¹ says that early diagnosis is the most important single factor in the fight against malignant disease. "It seems to me, however, that, despite a natural aversion to airing medical subjects in the lay press, it should be possible to give advice without frightening people to death or offending the public taste."

MacCarty¹² points out that the cancer problem has five distinct parts, which he enumerates in the "probable order of practical importance." He puts the recognition or diagnosis by laymen, the general practitioner, the general pathologist, the surgical pathologist, the surgeon, and the teachers in medical schools in the first place. It is obvious that the education of the public and the education of the medical student and the medical practitioner must go hand in hand.

Smith¹⁸ says that it would seem that cancer education ("anticancer propaganda") for the lay public must be made much more effective if we are to expect patients to seek medical advice at an early date. On the other hand, this will be of no avail unless even more strenuous propaganda (education) is carried out within the medical profession in order to get the general practitioner to suspect cancer more frequently and to impress upon him the necessity for consultation upon points in which he hesitates to take the full responsibility for decision.

Greenough⁷ pointed out that in the Massachusetts General Hospital in Boston, in 1914, 26.0 per cent of the operable cases of cancer of the breast showed no involvement of the axillary lymph nodes. In 1926, 40.0 per cent of the cases of cancer of the breast showed no axillary lymph node metastasis. He was of the opinion that this is a clear indication of the value of popular education.

Handley⁹ advocates the instruction of men in the importance of personal hygiene because he believes that carelessness concerning sub-

preputial hygiene and cleanliness, while a menace to the male, is a more serious menace to the female.

Shore¹⁷ points out that in an unselected group of 744 patients with cancer admitted to St. Luke's Hospital in New York City only 182 or 24.4 per cent were operable. He says "Such a situation is deplorable and explains the small percentage (7.8 per cent) of five-year survivals. Education of the medical profession and of the laity is the only means of correcting such a condition."

Keynes¹¹ says the practitioner should teach the public that early cancer is painless and often curable. Whatever progress is made in surgical and radiologic technic, the end results will not improve unless more precise diagnosis can be made earlier and unless patients come more readily to seek advice.

Novak¹⁴ says that for the present the obvious point of attack in the cancer campaign lies in the effort to increase the proportion of cases in which treatment gives a chance for cure. The early cases, however, cannot be treated unless, on the one hand, patients are taught to ask for examination as soon as suspicious symptoms appear and, on the other hand, unless physicians look upon suspicious symptoms as requiring prompt and thorough study and unless they lose no time in making the necessary examination.

Physicians may help the cause of early diagnosis by taking part in an educational program directed to the laity, taking advantage of every opportunity to advise the individual patient of the necessity of heeding the danger signals and of developing in themselves habits of thoroughness and conscientiousness in the examination of patients who present the danger signals.

Ross¹⁶ in discussing a paper by Balfour, pointed out the fact that the results of the treatment of gastric carcinoma are better in urban than in rural communities. He says "More can be accomplished only if we can aid these agencies in the education of those people who are likely to develop cancer, or who have it and who know nothing about the disease. While the educational program of the American Society for the Control of Cancer, the American College of Surgeons, and other groups is reaching the patient in the medical centers, the people who live in rural communities—nearly one-half of the population of the United States—know nothing of the program or of the need of it."

Cohn⁴ has studied 481 cases of breast cancer admitted to the Charity Hospital in

in accordance with most observers' figures

Season

In 1925 Zahorsky² stated that most cases occurred in spring, summer, and early autumn, although in his original group he had no cases in the hot summer months. Heiman⁴ reports that most of his 30 cases occurred in late summer, early fall, and during the winter in batches. Ruh and Garvin⁵ saw the majority of their 60 cases in the late spring. The tendency for them to occur in groups has been noted, and this is true in our experience.

In the entire series the distribution of attacks according to months is as follows

	Number of Attacks	
January	0	
February	10	18 or 16% winter
March	8	
April	5	
May	12	28 or 25% spring
June	11	
July	13	
August	17	40 or 35% summer
September	10	
October	14	
November	6	27 or 24% fall
December	7	

Symptomatology

Certain aspects of the clinical picture may be discussed further

Fever is the outstanding symptom. The majority of patients have a peak temperature of 103 to 104 F, some may go over 105 F, and in 2 cases no history of fever could be obtained. In 108 cases where the duration of fever was known, the fever persisted for one day in 2 cases, two days in 4 cases, three days in 99 cases, and four days in 2 cases. In the report of 54 cases accurately observed by Barenberg and Greenspan⁶ in an infant's home, it was possible to take four hourly temperature readings in all cases. They found that the infants fell into two groups. In the first group the temperature was elevated from the beginning and came down by crisis in about seventy-two hours. In the second group the maximum temperature developed on the second day and fell gradually to normal by the fourth day. Zahorsky³ describes morning remissions in many cases, and this is true in our experience. The temperature reaction seems labile and is almost specifically affected by acetyl salicylic acid.

Irritability is common and, in many cases, extreme, sometimes persisting for several days after the rash has appeared. Some infants, however, are remarkably free of any symptom of irritability.

Anorexia is likewise a variable symptom—

the majority of children eat, but less well than usual. An occasional child will go through the entire course of the disease without loss of appetite.

In the 3 cases occurring in older children, 2 complained of headache as did the 31-year-old woman described by Cutts.⁷ In this case, except for this symptom initially and the fever, she had practically no symptoms. This is in accordance with one of the most important diagnostic features—the high fever in an infant who does not appear ill.

Vomiting and diarrhea occur but are rarely severe or persistent. In a few cases there is some cough.

Occasionally, one sees what might be considered a fulminating case. In these the onset is abrupt, often ushered in by a convulsion, temperature of over 105 F, and rather marked prostration. In these children, meningitis may be suggested, and in several of the hospital cases lumbar puncture was done to rule out this possibility.

On physical examination the throat is often inflamed and the eardrums injected. In some children this inflammation is enough to suggest a hemolytic streptococcal infection, and sulfanilamide has been given. This drug does not alter the course of the disease.

Adenopathy is, in my experience, uncommon. However, in 1 infant, seen for the first time with an extremely intense rash, there was sufficient swelling of the posterior cervical and posterior auricular glands to suggest German measles.

The *exanthem* looks more like that of German measles than that appearing with any other condition. Barbiturate or sulfanilamide rashes are somewhat similar. It is macular, dark rose in color, and usually discrete, with individual lesions between 1 and 5 mm in diameter. The rash varies tremendously in intensity. In some cases only a few spots are visible and then only for a short period, while in others the lesions may become confluent in places. The back, chest, abdomen, shoulders, and buttocks are usually most intensely involved, although the forehead, the back of the neck, and the area behind the ears may be involved. It does go beyond the hairline in the scalp when marked elsewhere and may also involve the extremities. If one examines the lesions across the light, many of them seem slightly raised above the surface. In 1 case, referred to above, the rash lasted about four days, but in the majority of children it disappears within thirty-six hours, leaving no pigmentation and no desquamation.

ROSEOLA INFANTUM (EXANTHEM SUBITUM)

BURTIS B BREESE, JR, M D, Rochester, New York

ONE of the most common pediatric problems in the home is high unexplained fever in a young child. Because roseola infantum is such a common cause of unknown fever in the young and because many practicing physicians are not well acquainted with this clinical entity, this group of 111 cases is presented.

To John Zahorsky, of St. Louis, belongs the credit of first separating the disease from the other exanthemas. In 1910 he presented a group of 15 cases to the medical profession.¹ His original description of the disease has stood the test of time, and his observations have been repeatedly confirmed.

"The patient is almost always a child under 3 years of age who is suddenly taken sick with high fever. The physician is called and, on examination of the patient, finds nothing abnormal. The fever continues but nothing abnormal can be found on the second, third, and even the fourth day, when the fever drops by crisis and the child who has been drowsy or very irritable sits up and commences to play. Coincident with the drop in temperature a morbilliform rash appears on the face and neck and rapidly spreads over the body. The eruption disappears in twenty-four to forty-eight hours. There are no sequelae. No desquamation follows the disappearance of the rash.

"These are the striking and characteristic symptoms: a prodromal fever lasting from two to five days, disappearance of the general symptoms with the appearance of the rash, and a morbilliform eruption."

Frequency

In 1925 Zahorsky² stated that he had seen over 300 cases. Reports of 20, 30, or more cases seen in comparatively short periods of time are not uncommon.

From January 1, 1936, until the end of December, 1940, a period of five years, I have seen 100 attacks in 98 patients of what I considered definite roseola infantum.

During the past ten years at the Strong Memorial and Municipal Hospital 13 cases were discharged with the final diagnosis of roseola. All these cases were admitted with diagnoses at variance with discharge impres-

sion. Many other children with the condition were seen in the outpatient and emergency departments but not admitted. This simply indicates that, as a rule, these cases are not seen in any number in hospital practice but are seen most frequently in private practice. As compared with the other exanthemas of childhood in my personal experience, roseola is the most common. This is true probably because of the high percentage of infants seen in pediatric practice.

In order to arrive at a rough estimation of the frequency of the disease in the population, 70 cases of infants who had been followed carefully through the first year of life were selected. In each of these children, I am relatively certain, no illness occurred in the first 12 months of life which I did not observe.

Of these 70 cases, 11 infants had definite roseola infantum within the first 12 months of life—approximately 16 per cent. According to my figures on age distribution of the disease, about 50 per cent (47) of the cases occur under the age of 1 year. If this is so, out of the original group we should expect 11 more cases, or a total of approximately 30 per cent, to have roseola eventually.

Age

Everyone who has written on this subject has stated that the disease is primarily one of infancy. Zahorsky² states that the youngest patient he has seen with the disease was 2 weeks old,* in my experience the youngest patients were 3 months old.

It is the fixed idea that this illness is one of infancy only, which may occasionally lead us astray in diagnosis. Morgan Cutts³ reports a case in a 31-year-old woman. Zahorsky² mentions several older children in his series. I have seen 2 eight-year-old children and 1 9-year-old child with the disease. However, about 47 per cent do occur under 1 year, 82 per cent under 2, and 93 per cent under 3. The greatest number of cases occurred in the tenth month (12 or 13 per cent).

Sex

In this series the sex incidence was equal. There were 55 girls and 56 boys. This is

From the Department of Pediatrics, University of Rochester School of Medicine.

* In Zahorsky's latest discussion² 2 months is given as the age of the youngest patient seen.

TABLE 1.—DISTRIBUTION OF 131 WHITE BLOOD COUNTS IN ROSEOLA INFANTUM

White Blood Count	Day of Disease						
	1	2	3**	4	5	6	7
2,000-2,999	0	1	2	0	0	0	0
3,000-3,999	0	9	2	2	0	0	0
4,000-4,999	2	8	7	2	0	2	0
5,000-5,999	1	2	8	2	2	3	1
6,000-6,999	3	7	4	7	2	0	3
7,000-7,999	1	4	0	3	4	3	1
8,000-8,999	1	1	1	1	2	0	2
9,000-9,999	1	2	0	3	0	2	4
10,000-10,999	1	0	0	2	0	0	0
11,000-11,999	2	2	0	0	1	0	0
12,000-12,999	0	1	0	0	0	0	0
13,000-13,999	1	0	0	1	0	0	0
14,000-14,999	0	0	0	0	0	0	0
15,000-15,999	1	0	0	0	0	0	0
Total	14	37	25	22	13	10	11
Mean*	8 700	5 900	5 000	7,200	7,400	6,700	7 900
Standard error of mean*	900	400	300	300	800	600	500
Standard deviation*	3 200	2,500	1,300	2 500	1,700	1 800	1 500
Standard error of standard deviation*	800	300	200	400	400	400	300

* Rounded to nearest hundred.

** One case 20 000 on third day

TABLE 2.—PERCENTAGE OF LYMPHOCYTES IN THE BLOOD OF PATIENTS WITH ROSEOLA INFANTUM

Lymphocytes %	1	2	3	4	5	6	7
10-19	1	0	0	0	0	0	0
20-29	0	0	0	1	1	0	0
30-39	1	3	0	0	0	0	1
40-49	2	1	1	0	0	0	0
50-59	1	4	4	5	1	0	0
60-69	0	2	1	1	0	1	2
70-79	0	4	5	2	3	1	3
80-89	1	1	5	11	6	7	4
90-99	0	0	0	1	1	1	1
Total	6	15	16	21	12	10	11
Mean, %	47	59	71	73	76	83	75
Standard error mean*	9	4	4	4	5	2	3
Standard deviation*	21	16	13	17	18	10	16
Standard error of standard deviation*	6	3	3	3	5	2	3

* Rounded to nearest whole number

lowing day it was more intense. The mother stated that the rash was identical in appearance with that which she had had the year before.

Robert H., aged 10 months, developed a fever of 102 F in May, 1939. I examined him on the first day of the fever and found nothing to account for it. His white blood count was 4,200. On the third day of the illness his temperature came down to normal for the first time, and he developed a mild roseola rash on the fourth day.

In June, approximately one month later and three days after he had been vaccinated for smallpox, he developed a temperature of 103 F without physical findings. This fever lasted for three days and then came down, and he developed a rash similar to the first one. On the fourth day his white blood count was 6,000. Whether this was a vaccinal rash, appearing early, or a second attack of roseola is difficult to say.

Laboratory Findings

The only characteristic laboratory finding in this disease is a relative leukopenia and lymphocytosis reported first by Levy¹⁰ and Veeder and Hempelmann¹¹. Faber and Dickey¹² and Barenberg and Greenspan⁶ have confirmed this observation. However, most

of these counts were made on the third day of the disease or later. In our series, seventy-two white blood counts were done on 61 patients and thirty-three differential counts on 30 patients, a number of them on the first and second days of the disease as follows:

Day of Blood Count	Total White Blood Count	Differential Blood Count
1	13	5
2	29	10
3	18	10
4	8	4
5	3	3
6	0	0
7	1	1
Total	72	33

In order to obtain a larger number of blood studies than those contained in any single series, these counts were combined with those reported previously by others.^{6,7,11,12} In this manner a series of 130 white blood counts and ninety-one differential counts were obtained. These counts had been done from the first to the seventh day of the disease inclusive and are presented in Tables 1 and 2.

Although, to my knowledge, this is the first attempt to combine our information of these blood findings in roseola infantum, from the statistical standpoint the number of observa-

The typical skin manifestation usually appears shortly before or shortly after the temperature reaches normal. In many cases the rash so alarms the parents that they take the child to the physician when it appears and after the disease has run its course

Day of Disease on Which Rash Appeared	Number of Attacks	Cases	%
1	0	0	
2	2	1	8
3	7	6	3
4	79	70	5
5	18	16	0
6	0	0	
7	1	0	9
Unknown	5	4	5
	112	100	0

In 1 infant, a doctor's child, the rash was so faint that had there not been careful observation it probably would not have been noticed. This brings up the question of whether the disease may occur without any rash being manifest. I have had several cases that ran a course not unlike roseola with the typical blood picture, and yet these infants had, as far as could be determined, no rash. Barenberg and Greenspan⁶ describe 3 patients with the characteristic course and blood findings who did not have the rash. In 1 of twins, both of whom had the disease, no rash appeared. Therefore, it seems extremely probable that the disease may occur without the appearance of a rash.

Complications

All the children seen in the home or office were free of complications except 1 who had a concomitant otitis media. In the hospital series, 3 children did have otitis media at the same time or shortly thereafter. No other sequelae were noted. This is in agreement with the generally accepted opinion that complications do not occur with roseola infantum.

Communicability

The disease has been described as one that is only slightly, if at all, communicable. In our experience this would seem to be the case. However, on examination of our series we find that there were only 5 susceptible contacts and of these, 2 developed the disease.

Zahorsky mentions one family in which 2 children came down with the infection within three days of one another.⁷ Cushing⁸ described an epidemic of 6 cases occurring among 10 infants who were in an institution. The incubation period in these cases was ten days in 3 children, seven days in 1 case, and nine days in the remaining case. In Barenberg and Greenspan's series it was possible to trace the incubation period in 18 cases. The range was

from five to fifteen days with an average of ten days. The occurrence of the disease in twins, referred to above, is of interest because it shows (a) that the disease may occur without the rash and (b) that the incubation period is probably around five days. For this reason these cases are reported here.

Case Reports

Dale P., aged 5½ months, developed a fever of 102 F on October 7, 1940. He had one loose stool, was somewhat listless, but otherwise did not appear ill. He was examined on the day of onset and nothing abnormal was found. At this time his white blood count was 5,400 with 64 per cent lymphocytes. The parents were told that he probably had the "rose rash of infants" and that he would probably have fever for three days which would be followed by a drop in temperature and the appearance of a rash. He did have a fever for three days, and on the fourth day his temperature did fall to normal but no rash appeared.

On October 11, 1940, Delores, his twin sister, developed a temperature of 100 F in the evening. The next day the temperature rose to 103.2 F, on October 13, to 103.4 F, and on October 14, to 103.4 F. She was examined on October 14 and nothing unusual was found. At this time her white blood count was 3,600 with 82 per cent lymphocytes. Dale's white blood count at the same time (one week after the onset of his illness) was 9,700 with 82 per cent lymphocytes. On October 15 (four days after onset) Delores' temperature became normal and on October 16 a generalized roseola rash appeared, which lasted for forty-eight hours.

Second Attacks—These are infrequently described, but Zahorsky⁷ states that he has seen the disease more than once in 2 children in 1 of whom he was not sure of the diagnosis. I have had the same experience.

In August, 1938, I saw Joan G., aged 10 months, because of fever and irritability of one day's duration. Physical examination showed nothing abnormal and the child was not very sick. A white blood count on this visit was 12,500. Two days later she still had fever and her white blood count had dropped to 6,700. On the fifth day the mother phoned and informed me that Joan was covered with a rash, like measles, that her temperature was normal, and that she felt well.

In June, 1939, Joan suddenly developed a high fever and had a convulsion. She was brought to the hospital where I first saw her. At this time her temperature was 104.6 F and her white blood count 8,800. The following day her temperature was still elevated and her blood count was 9,200. On the fourth day her white blood count dropped to 6,500 and her temperature came down to normal. She broke out in a generalized roseola rash that day, and on the fol-

mission, and blood findings are discussed. Several unsuccessful attempts to isolate the etiologic agent of the disease are described.

This clinical entity occurs frequently, most commonly in spring and summer, and affects children under 3 years of age. A three-day fever in a patient who does not appear ill, absence of physical findings, and a typical rash that appears after the fall in temperature are the characteristics of the disease. It is accompanied by a leukopenia and a lymphocytosis. It is infectious but the etiologic agent is not known. It has no complications, its treatment is symptomatic, and its chief practical importance is one of differential diagnosis, especially in the pre-eruptive stage.

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MEDICAL PRACTICE AND OUR AGING POPULATION

For many years the average age of the American population has been increasing, and there is every indication that this trend will continue into the future. These changes in the age structure will profoundly affect our economy, our institutions, and our way of life, says the *Statistical Bulletin* of the Metropolitan Life Insurance Company. The impact will be felt especially in the field of medicine, because the prevalence and the character of sickness in the community are greatly influenced by the age composition of its people.

It is evident, therefore, that the aging of the population will have a marked influence on medical economics. As the proportion of older persons doubles in the course of the next genera-

tion, an increasing number of physicians and of hospital facilities will be required. A regional redistribution of physicians may be in order, in view of the increasing numbers of old people who locate in the South. As the proportion of younger persons declines, and there is increasing mastery over the acute diseases, physicians will have more time and inclination to devote to the chronic diseases. The total volume of illness will, however, increase because of the longer periods of disability which characterize these diseases. The changing situation will bring up new and vital problems of medical organization and personnel. It will be the better part of wisdom to study these problems carefully and make suitable provision for them in advance.

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tions should be increased, especially in the first day of the disease. Nevertheless, they do show the general trend of the blood reaction to the disease. In the first day, although the total white blood count shows considerable variation, there is a tendency for a relative leukopenia without much change in the differential count. The leukopenia becomes most marked by the third day and then returns to normal whereas the lymphocytosis becomes most marked later and persists longer than the leukopenia.

Diagnosis

From the practical standpoint roseola infantum is a diagnostic problem, and only a diagnostic problem, in its pre-eruptive stage. When the rash appears, anyone acquainted with the disease can almost make the diagnosis over the telephone.

In the majority of cases the diagnosis can be strongly suspected before the rash appears on the following bases: (1) age—child under three years, (2) fever—sudden onset and relatively high, (3) physical findings—absent or slight and child does not appear so ill as might be expected from the degree of fever, and (4) white blood count—relative leukopenia with a tendency to lymphocytosis.

After the rash appears, the diagnosis rests on the appearance of the exanthem and its occurrence after the fever has disappeared. At this stage the lymphocytosis is most marked.

Treatment

This is purely symptomatic, although acetylsalicylic acid almost specifically affects the temperature. Many of the youngsters who are old enough to be up and about continue to play and are much happier when not kept in bed. The course is not altered by rest in bed, and in many cases this is impossible.

Etiology

No etiologic agent of the disease has been identified. Because of the failure of routine bacteriologic methods to demonstrate a causative organism in the blood, stools, or throat of patients with the disease, an attempt was made to recover a filterable virus.

In measles, to which roseola infantum is somewhat analogous, a filterable virus has been isolated from patients in the pre-eruptive stage of the disease only. For this reason our attempts to recover a virus were limited to patients during the febrile period before the appearance of the rash.

In each of 3 infants the throat was swabbed with cotton saturated with meat extract broth, which was transferred to small tubes of the same media. This material was then filtered through small Seitz filters.

The filtrate was applied to the scarified cornea of rabbits and injected intracerebrally and intraperitoneally into rabbits, guinea pigs and mice.

The filtrate from 1 case was applied to the cornea of two rabbits and injected intracerebrally and intraperitoneally into each of six mice and two guinea pigs. Material from a second case was applied to the cornea of two rabbits. Material from a third case was inoculated intracerebrally and intraperitoneally into two rabbits, two guinea pigs, and six mice.

We are indebted to Dr Jerome Syverton of the Department of Bacteriology of the University of Rochester for this bacteriologic investigation.

In addition to this, blood was obtained from 1 patient in the outpatient department of the Strong Memorial Hospital during the pre-eruptive stage and the serum was transferred to the chorioallantoic membrane of a chick embryo. In a fifth case the filtrate of throat swabbings was treated in a similar manner. The egg inoculations were done by Mr Charles Shepard, student fellow in the Bacteriology Department of the University of Rochester.

None of these attempts to demonstrate a filterable virus met with success.

Zahorsky² has mentioned the fact that in the families of children affected by the disease no illness is present preceding the onset of the child's symptoms in the majority of cases. This is our experience. In many cases the child has had no contact other than with the immediate family.

However, we know from Cushing's³ and Greenspan and Barenberg's⁴ reports and from the attack in twins, reported above, that the disease is definitely infectious. Greenspan and Barenberg felt that they could demonstrate a correlation between infection in various cottages in the infant's home from which their cases were reported with carriers among the adult attendants of these children. This would seem, at the present time, the most reasonable explanation for the transfer of this interesting disease.

Summary

One hundred and eleven cases of roseola infantum are presented. The age, frequency, seasonal variation, symptomatology, trans-

mission, and blood findings are discussed. Several unsuccessful attempts to isolate the etiologic agent of the disease are described.

This clinical entity occurs frequently, most commonly in spring and summer, and affects children under 3 years of age. A three-day fever in a patient who does not appear ill, absence of physical findings, and a typical rash that appears after the fall in temperature are the characteristics of the disease. It is accompanied by a leukopenia and a lymphocytosis. It is infectious but the etiologic agent is not known. It has no complications, its treatment is symptomatic, and its chief practical importance is one of differential diagnosis, especially in the pre-eruptive stage.

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Case Reports

INTRAPERITONEAL ACTINOMYCOSIS

RICHARD A. LEONARDO, M D , Ch M , F I C S , Rochester, New York

ACTINOMYCOSIS is rare enough, and the abdominal form occurs in only 20 per cent of the cases. Intrapertoneal actinomycosis due to the liberation of the *Streptothrix actinomyces* from the human intestinal canal via the perforation of an acute appendicitis is, obviously, rarer still. For this reason the case may warrant reporting, besides, the case is of interest because of the great difficulties encountered before successfully reaching the correct diagnosis and also because of the failure of all recognized forms of treatment to prevent a fatal termination.

Case Report

E. A., a white man aged 30, sought hospital admission on November 7, 1938, for the relief of his complaint of acute abdominal pain of two days' duration. Clinical symptoms and physical examination were suggestive of an ordinary acute appendicitis, and an appendectomy was done through a McBurney incision. At operation the appendix was found to be perforated with a moderate amount of localized peritonitis surrounding that area. On the fifteenth postoperative day he was discharged, although the wound was still draining. When he was seen some three months later, the wound was all healed and his only complaint was persistent constipation. When seen again about six weeks later he complained of "sciatica" in the right hip and leg and also of pain in both buttocks and knees. He gave a history of having lost over 25 pounds in weight since date of operation and stated that he had never felt well since the appendectomy had been done.

A physical examination on May 29, 1939, at the time of readmission to the hospital, was as follows: temperature, over 102 F., pulse, 112, respirations, 24. General appearance was one of marked cachexia with slight flexion deformity and lateral rotation of the right hip, which was held rigidly in this position and was painful on passive movement. Except for a few rales at the bases of both lungs, the chest, including the heart, was entirely negative. Tenderness was present over the appendectomy scar and in the right sacroiliac region, extending downward into the right hamstring muscles.

The important laboratory findings were as follows: white blood count, 28,700 (March 29, 1939) and 15,500 (November 16, 1939), red blood cells, 3,600,000, chest and abdominal x-ray films, negative, barium enema showed stricture of upper rectum from unknown "outside cause", cultures from wound of first exploratory laparotomy (April 1, 1939) were negative. An x-ray of the chest (October 18, 1939) showed no evidence of actinomycosis, but pathologic sections from a biopsy of the sinus tract over the ileum revealed the typical sulfur granules of actinomycosis (October 9, 1939). The patient had previously had a second exploratory lapar-

otomy on April 16 and a third one on September 14, 1939—each one failing to find sufficient evidence to establish a definite diagnosis. At the first exploratory operation (April 1) an organized mass of inflammatory adhesions was found in the pelvis, at the second exploratory operation (April 16) several swollen lymph nodes were removed from the mesentery for biopsy (pathologic report was naturally negative because the actinomyces is too large to pass through the lymphatics), at the third exploratory operation (September 14, 1939) nothing of diagnostic importance was found, but a biopsy taken from the resultant sinus tract (from this operation) showed typical actinomyces (October 9, 1939). The patient had several sinuses because the laparotomy incisions all failed to heal and, besides, several localized abscesses had been drained with resultant sinus tracts—notably, an abscess over the right buttock which was incised and drained June, 1939, and a large abscess over region of right hip, which was incised August 15, 1939, with a persistent sinus resulting from each incision.

Treatment—At one time or another the patient received almost all of the recognized forms of treatment, but to no avail. The wounds were irrigated with Dakin's solution, frequent blood transfusions were given, an intensive course of thymol therapy was given, iodides were administered in large quantities, both by mouth and intravenously, and two prolonged courses of sulfanilamide therapy were given (using large doses)—all without any apparent benefit to the patient. We were about to start x-ray treatment (recently recommended by McKee, staff members of the Mayo Clinic, and others) when the patient took a sudden turn for the worse. He died on Christmas day in 1939.

Autopsy—An autopsy was done at the Monroe County Hospital under the direction of Dr. W. S. Thomas, pathologist. A summary of the autopsy report follows: Beginning actinomycosis was found in both lungs together with bilateral pneumothorax, there were several infected sinus tracts in the lower part of the abdominal wall and over the buttocks, some of the tracts leading into the pelvis, fistulas were found in the large bowel, and a large, granulomatous tumor was present in the pelvis, involving both the rectum and the sigmoid colon. Peripheral edema and a generalized arteriosclerosis completed the pathologic picture.

Conclusion

An unusual and fatal case of intraperitoneal actinomycosis, caused by ruptured, acute appendicitis, is reported. The case is of interest not only because of its relative rarity but because of the difficulties encountered before it was possible to reach the correct diagnosis and also because of the obvious failure of various forms of therapy previously reported as beneficial in other cases.

ACUTE BACTERIAL ENDARTERITIS OF A PATENT DUCTUS ARTERIOSUS

WILLIAM TRAVIS GIBB, JR., M.D., New York City

THIS paper presents an instance in which a patent ductus arteriosus was found as the only congenital abnormality in the heart of an older individual, and it re-emphasizes the pronounced vulnerability of such a lesion to the superimposition of an acute bacterial process. It also shows that when such a lesion is discovered clinically the possibility of a bacterial complication may be seriously considered and operative interference entertained before such a development has taken place.

A reawakening of interest has recently been effected in the study of anomalous formations of the heart and its vessels. Within the past few years the surgical approach to this difficult problem has brightened the seemingly hopeless outlook of patients with such lesions. The common incidence of congenital heart disease makes its consideration of great importance, both from an anatomic and therapeutic standpoint. This fact combined with a more optimistic attitude toward the life expectancy of these individuals, created by a promising operative correction, should prove motivation enough for a renewed consideration of these abnormalities.

To Maude Abbott^{1,2,3,4} should be attributed the major credit for the exhaustive anatomic analysis of this subject. Her studies have shown a significantly frequent incidence of patent ductus arteriosus, an anomaly that forms the basis of this report. Of the 1,000 cases of congenital cardiac defects which she reviewed, 242 cases of patent ductus arteriosus were encountered, approximately 150 of which were associated with other varieties of congenital defects. The hearts of 92 were the seat of patent ductus arteriosus alone or in association with only minor anomalous formations. Twenty of these 92 subjects had died before the age of 5, while the remaining 72 cases had succumbed to the effects of their anomalies either in later childhood or in their early adult years. It is noteworthy that about 27 cases of this group died because of the presence of a bacterial endarteritis, 16 succumbed suddenly due to their cardiac abnormalities, while 24 were victims of a prolonged bout of cardiac failure. Sixty-six cases out of this group died, at an average age of 24 years, of a cause attributable, directly or indirectly, to the congenital defect. This cogently portrays the gravity of the lesion and stresses the importance of a vigorous reconsideration of the problem.

In view of the generally accepted belief that patent ductus arteriosus or any other anomalous formation of the heart is usually found as one of multiple defects, it becomes important to realize the point emphasized by the Abbott series—that any of these lesions may exist

alone—and indicates that the possibility of the presence of an isolated lesion should be considered in formulating a decision of the operability of a given case.

Case Report—From the Knickerbocker Hospital, New York City

W. K., a white man aged 51, was admitted to the Knickerbocker Hospital on December 28, 1937, complaining of fever, pain in the back of his neck, and hoarseness of ten days' duration. His family history was irrelevant and, aside from a bilateral herniorrhaphy in 1930, the past history was negative. The patient had always been in good health and had been able to indulge in all the usual forms of muscular activity of childhood and adult life. Ten days prior to admission he first noticed that he had a fever, then pain in the upper cervical region of his neck, and a gradually increasing painless hoarseness made their appearance. The degree of the pain remained constant, but the hoarseness became progressively worse. His temperature during this ten-day period reached the level of 104° F. at night and would drop as low as 98° F. in the morning. During this ten-day period he had received nothing but fluids by mouth and had had frequent enemas, with the result that upon admission his stools were watery in character.

Examination showed a well-developed adult white man lying quietly in bed apparently acutely ill but not in pain. There was no cyanosis or pallor. His pupils were equal and round and reacted both to light and accommodation. There was no discharge from the ears or nose, the nasopharynx was normal. Slight tenderness was elicited on pressure in the upper cervical portion of his neck, but there was no rigidity or lymphadenopathy. The lungs were clear throughout. The cardiac apex was within the midclavicular line. The sounds were regular and of fair quality. There were no murmurs audible. The abdomen was soft, and there were no masses or tenderness. His liver edge was felt three fingers breadth below the costal margin and was smooth, firm, and sharp. Knee jerks, ankle jerks, Babinski, abdominal, and cremasteric reflexes were all negative.

A urinalysis showed a trace of albumin, a few white blood cells, and an occasional red blood cell. A blood count disclosed a hemoglobin of 86 per cent (Sahli), 4,250,000 red cells, and 8,400 white cells per cubic millimeter. A differential study of his blood smear revealed 78 per cent polymorphonuclear leukocytes and 24 per cent lymphocytes. Agglutination reactions were negative for typhoid, paratyphoid A and B, typhus, and Brucella abortus. A blood culture revealed 1,200 colonies of *Staphylococcus albus* per plate in twenty-four hours. These findings were repeatedly substantiated. Cultures of his nose and throat showed *Staph aureus* predominantly. X-rays of the sinuses showed cloudiness of the frontals, ethmoids, and sphenoids. A teleroentgenogram revealed the

heart to be somewhat enlarged to the left. Increased vascular markings of the pulmonary field were also noticed bilaterally. A small, roughly rounded infiltration was seen at the left lung base and another similar infiltration in the second right interspace.

Temperature on admission was 104.2 F and remained elevated throughout his entire stay in the hospital. Two days after admission evidence was elicited of an area of consolidation in the right lower lobe, and three days later cyanosis appeared and became rapidly progressive. Abdominal distention and extension of the area of consolidation at the right base soon followed. Finally, sonorous and sibilant rales became diffusely audible over both lung fields, he gradually became more and more toxic and, finally, died eleven days after his entrance to the hospital. The day before his demise a great number of petechiae appeared over his back and several were noted in his conjunctivas. His death occurred notwithstanding treatment with protosil, prontosil, Staph albus antitoxin, Staph aureus bacteriophage, etc.

Necropsy—The skin showed innumerable petechiae, which were mostly situated upon the posterior aspect of the body. There were two conjunctival petechiae. Scattered petechiae were also seen over the peritoneum, while the small intestine showed many scattered, flame-shaped, and occasionally more irregular subserosal hemorrhages. The right pleural space was completely obliterated due to the presence of stout, bandlike adhesions. The left pleural space showed a similar process in its upper two-thirds, there was approximately 200 cc of turbid, straw-colored fluid in this hemithorax. The pericardial sac contained about 200 cc of clear, straw-colored fluid. The anterior aspect of the visceral pericardium showed oval and rounded zones of thickening. The heart was moderately enlarged. This enlargement was mainly due to thickening of the right ventricle and the prominent dilatation of the right cardiac chambers. The left ventricular wall was normal in width. On section, the myocardium was diffusely reddish brown, except here and there where a few submillary-sized, partially necrotic yellow nodules were encountered. A small number of fine nodular foci that had produced slight elevations of the endocardium were found subendocardially. The mitral valve showed some thickening of its anterior leaflet due to the interstitial deposition of a few rhomboid and a few more irregular arteriosclerotic plaques. There was no thickening of its chordae tendineae. The left auricular endocardium was smooth throughout. The foramen ovale was found closed. The papillary muscles and the trabeculae carneae of the left ventricle showed no gross abnormalities. The aortic valves showed a minimal thickening along the site of the fibrous decussations of the posterior cusp but, otherwise, were normal. The pulmonary conus and the lumen of the main branch of the pulmonary artery were distinctly widened and the intima of this section of the artery was thickened. However, there was no apparent thickening of the pulmonary cusps. Situated at the site of the ductus arteriosus, which was found to be patent, admitting a stout probe, there was a large, fleshy, mottled pink thrombus. A small

quantity of this thrombotic material was also found in the pocket produced by the ducts along the intimal surface of the aorta. The main thrombotic mass, however, was found to be situated definitely on the pulmonary side. The endocardium of the outflow tract of the right ventricle showed a slight degree of thickening. The tricuspid valve, except for some slight opacity of the septal leaflet, showed no abnormalities, its chordae tendineae were normal. The endocardium of the right auricle was diffusely gray and smooth. The coronaries throughout, except for some slight, asymmetrical, intimal thickening of the anterior descending branch of the left coronary artery, presented no abnormalities. The aorta in its descending portion was the seat of a few superficially ulcerated and hemorrhagically discolored arteriosclerotic plaques and several scattered intimal hemorrhages.

Throughout both lungs there were a number of infarcts that were well demarcated. On section, the centers showed liquefaction and necrosis. A small artery with an occluding thrombus was found leading to one of these. In another a small venous tributary was completely occluded by a mottled gray and red thrombotic mass. The lower portions of both lungs were completely airless and throughout this area there were numerous areas of hemorrhagic bronchopneumonia. In addition, there was a widening of the bronchial passages, while the terminal portions of the bronchi showed circular areas of dilatation. The walls of these affected bronchi were thinned, their mucosal surfaces were covered with a gray, mucopurulent material. The tracheobronchial mucosa throughout was markedly edematous, granular, and irregularly hemorrhagic and covered with a large amount of mucopurulent material. The regional tracheobronchial lymph nodes were moderately enlarged, soft, and discreet. The liver showed evidence of chronic passive congestion and a moderate degree of fatty change. The spleen was enlarged and showed two wedge-shaped, hemorrhagic, and lemon yellow infarcts. The kidneys presented several infarcts that were more hemorrhagic than those in the spleen. There were also many scattered, fine, flame-shaped, cortical hemorrhages that extended to a slight degree toward the medullary portion. Innumerable petechial hemorrhages, many of which were yellow-centered, were observed in the mucosa of the small intestine. The brain on section disclosed some fine, punctate hemorrhagic areas in the gray matter.

The anatomic diagnoses were chronic diffuse mucopurulent tracheobronchitis with secondary bronchiectasis, septicemia (Staph. albus) clinically, acute bacterial endarteritis (Staph. albus) of pulmonary artery superimposed on a patent ductus arteriosus, with extension into aorta, multiple infected pulmonary infarcts with secondary phlebitis of small pulmonary vein, patchy hemorrhagic bronchopneumonia, left hydrothorax (200 cc), multiple infarcts of spleen and kidneys, multiple focal abscesses of cerebral cortex and myocardium, multiple petechiae of skin and intestines, acute infectious splentitis with splenomegaly (450 Gm.), passive congestion and fatty change of liver, bilateral

adhesive pleuritis, status seven years post-bilateral herniorrhaphy

Comment

The case herein presented is illustrative of an individual who had had an uncomplicated patent ductus arteriosus for a period of fifty years before the superimposition of an acute bacterial endarteritis that had involved the pulmonary artery in the region of the ductus and had extended into the ductus itself and a small part of the aorta. It is noteworthy that the cardiac valves were entirely free of any bacterial involvement, nor did they show any evidence of any other disease process except for some thickening due to tension and arteriosclerosis. In view of the fact that no primary source for this infection other than an extensive bronchial inflammation was found at autopsy, the obvious explanation is that a transient bacteremia arose from such a source and produced the acute endarteritis of the patent ductus arteriosus. It also appears that the involvement of the pulmonary artery was responsible for the infarcts of the lung and that the extension of the bacterial lesion into the aorta and the associated pulmonary vein phlebitis led to the systemic involvement.

Deserving of mention is the fact, substantiated by three different observers, that at no time during the course of the acute disease was a cardiac murmur of any type audible. The explanation for this discrepancy was apparent in retrospect upon examining the heart at necropsy. It was found then that the entire lumen of the ductus was occluded by vegetations, and it was the assumption, therefore, that very little blood had been permitted to pass through this arteriovenous shunt. Furthermore, there was no history of any typical murmur being heard in the past although on the basis of the anatomic findings it is reasonable to believe that it must have been there. Moreover, the dilatation of the pulmonary artery and pulmonary conus offers strong anatomic evidence for the belief that the ductus arteriosus was patent for a considerable time prior to the onset of the endarterial infection. This contention was fortified by the hypertrophy and dilatation of the right cardiac chambers, which is certainly indicative of the long-standing anomalous shunting of the blood stream.

The reports of Dolley and Jones,⁴ Gross,^{4,7,8} and others concerning the surgical approach to the problem of patent ductus arteriosus are of the greatest importance. The opening of the left side of the upper anterior part of the chest wall, with ensuing collapse of the lung, produces an excellent exposure of the patent ductus and the structures immediately surrounding it. The ligation of the ductus itself, especially if its wall

is thin and friable due to its being already involved by a bacterial endarteritis, is the most hazardous part of the procedure. Hemorrhage may be fatal or difficult to control. The lumen of the ductus is funnel-shaped with the wider end originating from the aorta. Its length may vary from 2.25 to $1\frac{1}{2}$ cm and the wall is usually as thick as that of a vein. Sclerosis and calcification, especially in older cases, may occur at the aortic end and extend inward as much as 1 cm., this fact is of significance because of its effect upon a superimposed bacterial endarteritis, although the vegetations usually begin at the pulmonic end and may only involve the walls of the pulmonary artery in the immediate vicinity and leave the valves entirely free. Although there have been reports of successful operative procedures upon patients with bacterial involvement of the ductus, the really important approach to the problem is the obliteration of this passage before infection or cardiac failure has taken place. Gross has stated that in suitably worked up and selected cases an experienced surgeon should have a mortality rate of only 10 per cent, and that the closure should preferably be done between the ages of 6 and 7 years.

Aside from the usual contraindications to any extensive surgical procedure, the presence of other serious congenital abnormalities, such as coarctation of the aorta proximal to the opening of the ductus or congenital stenosis of the pulmonary valve, is an absolute contraindication, for in these conditions the shunt probably acts as a compensatory mechanism and the closure of it would be followed by fatal consequences. Therefore, it is of the greatest importance to exclude the possibility of any such accompanying defect, which in many instances is difficult. It is interesting to note in this connection that in Abbott's series almost all of the individuals with such serious complicating defects died before the age of 5.

The real difficulty lies not in the accurate diagnosis of the lesion or in the determination of the optimum time for operation but, rather, in persuading the parents of apparently healthy young individuals to allow them to be subjected to a serious operative procedure carrying with it a formidable mortality rate.

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PERIPHERAL NEURITIS FOLLOWING THE USE OF SULFAMETHYLTHIAZOLE IN A CASE OF SUBACUTE BACTERIAL ENDOCARDITIS

EMANUEL APPELBAUM, M.D., New York City

RECENTLY, two new sulfanilamide derivatives, sulfathiazole and sulfamethylthiazole, have been presented to the profession for clinical investigation. Like sulfanilamide these drugs are effective against experimental streptococcal infections and, like sulfapyridine, they have a pronounced antipneumococcus action, but unlike either of these preparations they are said to exert a marked effect upon staphylococci, both in vitro and in vivo. Experimentally, the thiazole derivatives have been shown to be less toxic than either sulfanilamide or sulfapyridine. Both thiazole compounds are said to show much less acetylation than sulfapyridine. The following report is offered as a probable case of intoxication following the use of sulfamethylthiazole.

Case Report

M. W., a man aged 21, was admitted to Sydenham Hospital on October 22, 1939, complaining of fever, night sweats, weakness, general malaise, painful red spots on the finger tips, and pain in the left upper abdominal quadrant of ten weeks' duration. For the past few days he also had cardiac palpitation. The fever was irregular, reaching, at times, 104° F. The asthenia became progressively more marked. He gave a past history of rheumatic fever at the age of 9 years.

Physical examination revealed a well-nourished but pale young adult, appearing chronically ill. The pupils reacted to light and accommodation. The conjunctivae and fundi were normal. The lungs were clear. The heart was moderately enlarged and showed harsh systolic and rumbling diastolic murmurs at the apex and also systolic and diastolic murmurs over the aortic area. The heart rate was 110, with a regular sinus rhythm. The blood pressure was 150 systolic and 50 diastolic. There was sternal tenderness. The spleen was slightly enlarged and tender. The liver was not felt. There were a few small red nontender spots in his finger tips, there was slight clubbing of the fingers. There was no paralysis or paresis, and the reflexes were normal. There were no pathologic reflexes, and the temperature ranged between 101° and 104° F. A diagnosis of subacute bacterial endocarditis was made.

The white blood count was 8,800, with 67 per cent polymorphonuclears, the red blood count was 3,700,000, with 60 per cent hemoglobin. The urine examination was essentially negative, and the blood culture was positive for *Streptococcus viridans*. This confirmed the clinical diagnosis.

As soon as the diagnosis of subacute bacterial endocarditis was established, the patient was started on sulfapyridine, receiving 1 Gm. every four hours. On November 3, following eleven days of chemotherapy, his white blood count dropped to 3,800, and several days later it dropped to 1,500. The neutrophils were 13 and 30 per cent, respectively. The sulfapyridine was immediately discontinued.

Following a course of pentnucleotide and a series of transfusions, the neutropenia showed gradual and progressive improvement. When the white blood count reached 9,400, the chemotherapy was resumed. He received sulfapyridine orally for one week, and for more than two weeks he was given neoprontol parenterally in addition to the sulfapyridine. This regimen was followed by a course of sodium sulfapyridine by vein, 5 Gm. daily, in conjunction with the oral use of sulfapyridine, 4 to 6 Gm. a day.

The program of intensive chemotherapy was continued uninterrupted from November 18, 1939, to January 2, 1940. The clinical picture throughout this period remained essentially unchanged. The temperature ranged between 99° and 103° F. There were frequent new crops of tender nodes on the palms of his hands and on the finger tips. On December 11 he showed evidence of splenic infarction. The neurologic examination was entirely negative.

The blood cultures were persistently positive for *Str. viridans*, showing from 100 to 280 colonies per cubic centimeter. The white blood count ranged between 5,600 and 7,350, with 75 to 80 per cent neutrophils. The red blood count ranged between 2,800,000 and 3,900,000, with the hemoglobin between 43 to 65 per cent. The urine showed a trace of albumin, 10 to 15 red blood cells, occasional hyaline and granular cast, and 4 plus urobilinogen. The blood sulfapyridine levels were always low, averaging 2 mg. per hundred cubic centimeters. The electrocardiogram showed slurring QRS in leads I and II and notching in lead III deep Q₁ and Q₂ and elevated S-T intervals in leads II and III.

On January 3 the patient was started on sulfamethylthiazole.* He received at first 6 Gm., and later from 8 to 12 Gm., per day. This drug was continued until January 25 when it was stopped because of a drop in the white blood count to 2,800, with 47 per cent polymorphonuclears. A course of pentnucleotide was again instituted. Five days later his white blood count was 3,200, with 70 per cent polymorphonuclears.

The total amount of sulfamethylthiazole received over a period of twenty-three days was 197 Gm. This drug appeared to have no influence on the clinical course, which continued to progress insidiously. The positive blood cultures persisted but showed somewhat fewer colonies, 104 to 137 per cubic centimeter.

On February 1 the patient showed impaired adduction in both thumbs. This was the first indication of peripheral neuritis but was not properly evaluated at the time. Several days later he developed pains in the lower extremities and bilateral foot drop. At about the same time he also developed signs of left pulmonary infarction with pleural effusion.

Unfortunately, the use of sulfamethylthiazole, which was resumed on February 1, was not con-

* The sulfamethylthiazole was generously furnished by the Winthrop Chemical Company.

sidered at that time as a possible etiologic factor of the peripheral neuritis and was, therefore, continued until the middle of March.

Neurologic examination on March 9 revealed flaccid paralysis of the lower extremities, with predominant involvement of the extensor muscles of the feet. The hand grip was weak on both sides, and there was loss of abduction and adduction in the fingers of both hands. Sensation was diminished in both upper and lower extremities. The biceps reflexes, knee jerks, and ankle jerks were all absent. There were no pathologic reflexes.

The spinal fluid showed a slight increase in the protein but was otherwise normal. The white blood count ranged between 6,000 and 8,000, with 70 per cent polymorphonuclears. The red blood count was 2,700,000 with 53 per cent hemoglobin. The blood sulfamethylthiazole level was 3.4 mg per hundred cubic centimeters. The blood nonprotein nitrogen was 26.6 and the urea 9.5 mg per hundred cubic centimeters. The blood cultures remained positive for *Str. viridans*.

The patient's general condition became progressively worse. There were numerous embolic

phenomena with multiple infarctions. He died in circulatory failure on March 30. A necropsy was not obtained.

Comment

This case illustrates some interesting and important points. Although the patient developed a marked neutropenia as a result of sulfapyridine intoxication, he was, after a period of interruption, able to resume and continue taking the drug with impunity. Likewise, the moderate neutropenia which followed the sulfamethylthiazole did not recur upon resumption of this chemical. As has been noted by several observers, the bacterial endocarditis failed to respond to a prolonged and intensive course of chemotherapy, including sulfapyridine, sodium sulfapyridine, neoprontosil, and sulfamethylthiazole. It seems reasonable to assume that the peripheral neuritis probably resulted from excessive ingestion of sulfamethylthiazole (197 Gm in twenty-three days).

910 Park Avenue

THREE CASES OF VENTRICULAR FIBRILLATION

One Electric Shock and Two Coronary Occlusions

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Case 1—On February 17, 1932, D. L. R., a man aged 25, was rendered unconscious by an electric shock estimated at 3,000 volts, 60-cycle alternating current. For the first two or three minutes there were intermittent, spasmodic, extremely deep respiratory efforts, entirely lacking in rhythm and failing to relieve the dusky, cyanotic, slate color present in his face and neck. An electrocardiogram taken within eight to ten minutes revealed ventricular fibrillation instead of normal complexes (Fig. 1).

Case 2—On November 22, 1935, A. N., a man aged 35, was brought to this hospital complaining of the characteristic symptoms of acute coronary occlusion. After opiates were administered, an electrocardiogram was taken (see Fig. 2). About two hours later, as we were about to repeat the electrocardiogram, the patient suddenly died. With the electrodes already in place ventricular fibrillation was recorded (see Fig. 3, page 1866).

Case 3—On March 2, 1936, T. R., a man aged about 45, was brought to this hospital with a history suggesting coronary occlusion three days before and again the night previous. His immediate complaint was a sense of sternal oppression. The standard three leads of the electrocardiogram had been completed (see Fig. 4) and a fourth lead was in process when the patient had a convulsion and died. The tracing was taken as soon as the convulsive seizure had ended (see Fig. 5). The record is characteristic of ventricular fibrillation.

Summary and Comments

Three cases of ventricular fibrillation are presented, Case 1 followed electric shock, and Cases 2 and 3 followed coronary occlusion of the deep sino-spiral muscle (DSS) and deep bulbo-spiral muscle (DBS) types, respectively (Robb and Robb). Dresbach, Langworthy and Kouwenhoven, Williams and Wiggers have all demonstrated that ventricular fibrillation is usually the mechanism of death in low-voltage shocks. It is an interesting sidelight that suitable countershock stops the fibrillation in most attempts experimentally.

The other 2 cases of ventricular fibrillation followed acute coronary occlusions where the DSS and the DBS were involved. According to Robb and Robb all cases of the DSS type coming to autopsy died because of the infarction after periods ranging up to about two weeks. This case survived only two hours.

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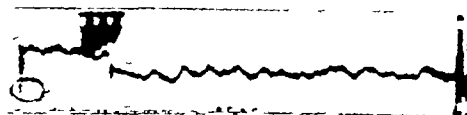


Fig. 1

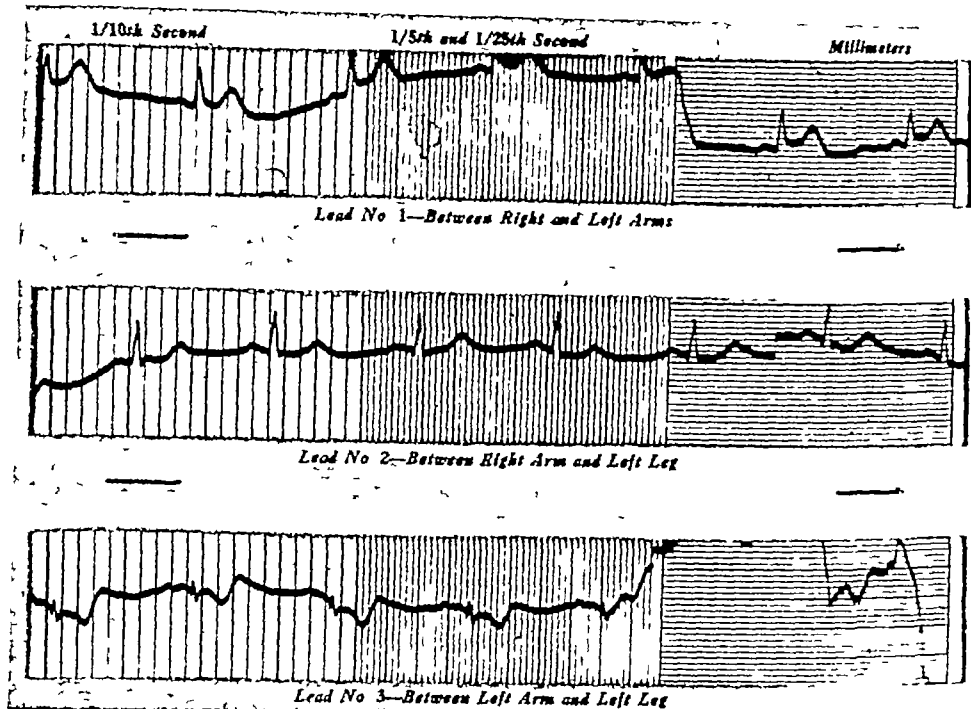


FIG 2

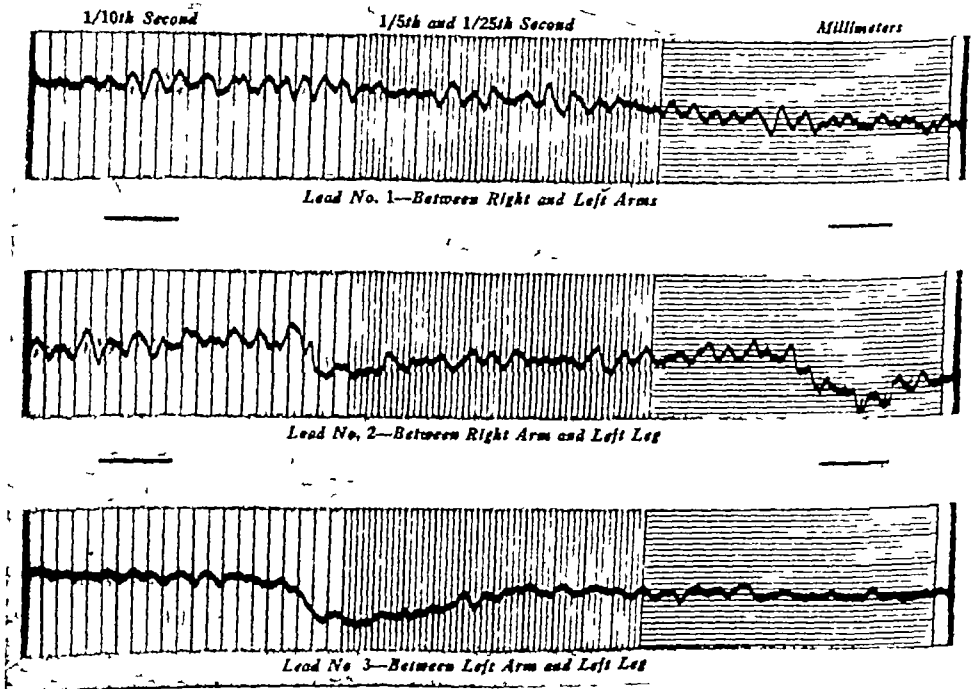


FIG. 3.

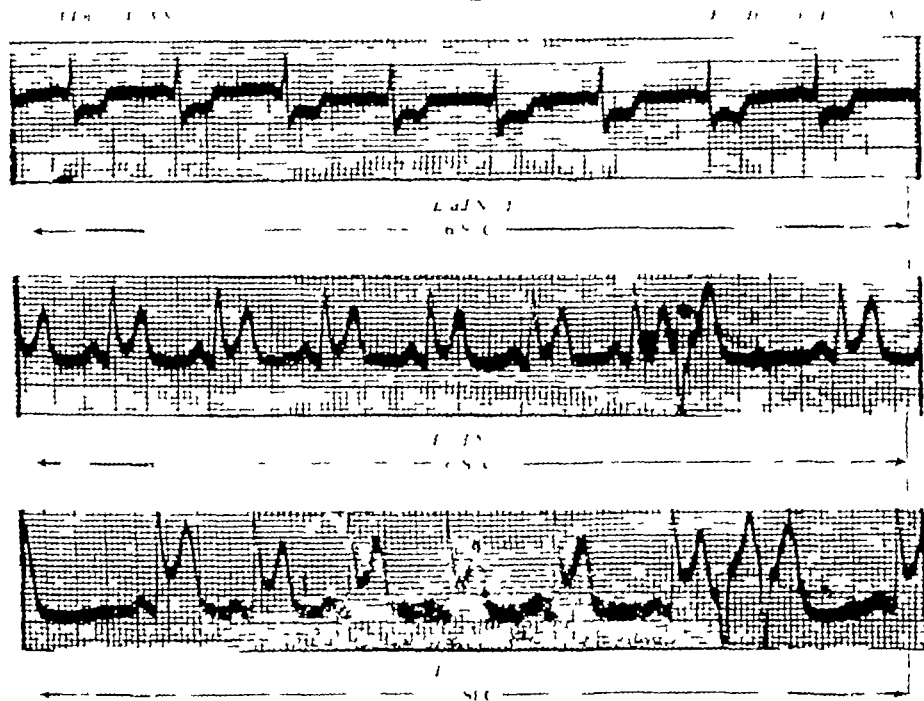


FIG 4.

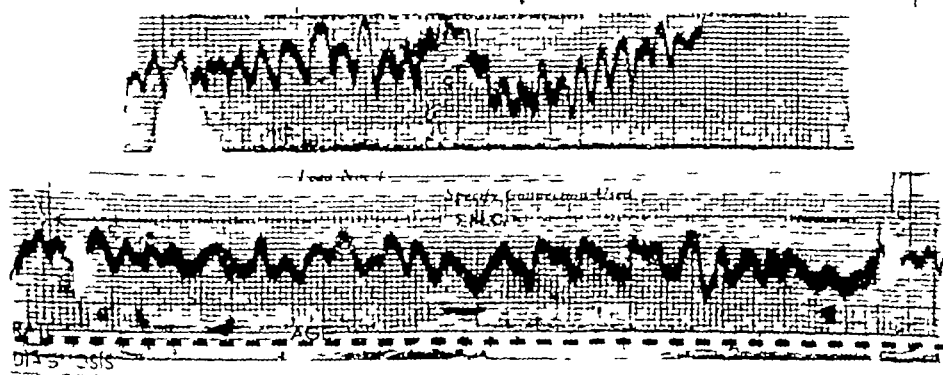


FIG 5

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VENOUS ANEURYSM AS A FACTOR IN THE DIAGNOSIS OF FEMORAL HERNIA

Report of Two Cases

LEONARD K STALKER, M D, Rochester, New York

CIRROID enlargement of the great saphenous vein at the fossa ovalis may be mistaken for femoral hernia. These enlargements or venous aneurysms may form a definite bulging which, with the patient standing, gives grossly the appearance of a femoral hernia. An impulse is obtained on coughing in both instances, which is confusing. Differential diagnosis, however, is easily made, and in all cases of suspected femoral hernia the great saphenous system should be investigated before operation is advised. This is done with the patient standing upright before the examiner with both legs fully exposed from the ground upward. The fingers of one hand are placed over the bulge at the groin, while the fingers of the other hand percuss a segment of vein in the leg below. If an impulse can be picked up by the fingers of the lower hand or if, by reversal of the procedure, an impulse can be felt in the upper hand, incompetency of the saphenous system is present, and this bulge must be suspected as being a venous aneurysm.

If a hernia is present, when pressure is made by the palpating finger on the bulge it can either be reduced or a sense of increased resistance will be present. If, on the other hand, a venous aneurysm is present, the resistance remains the same throughout the bulge, but when the patient reclines the dilation quickly decreases in size but does not entirely disappear. Cirroid dilatations of this type are always associated with incompetency of the saphenous system and varicosities of the lower extremities. I have recently performed a secondary operation on 2 patients who had had surgical treatment elsewhere for a supposed femoral hernia.

Case Reports

Case 1—A woman, aged 45, had had varicosities of both lower extremities for a period of eight years. These had increased in severity, and a few months before coming to me for treatment a bulge was noted in the left femoral region. She consulted a physician elsewhere, and the diagnosis of femoral hernia was made. Operation was performed elsewhere for this condition. The postoperative course was prolonged by a superficial thrombophlebitis of the left leg and a secondary wound infection. The patient states that she was aware that the same bulge was present in the left femoral region as soon as the dressings had been permanently removed.

It was for this reason I was consulted. My examination revealed a well-appearing woman who had moderate varicosities of both lower extremities with an associated incompetency of the great saphenous vein on the left side. There

was an oval bulge that gave an impulse on coughing in the region of the left fossa ovalis. The diagnosis was an incompetent left great saphenous vein with associated venous aneurysm.

Under local anesthesia, incision was made directly over the fossa ovalis. A great deal of scar tissue was encountered, which made the dissection more difficult. A cirroid venous enlargement approximately 4 cm in diameter was exposed. This enlarged some two or three times on coughing or straining. The dilated portion of vein was exposed back to its junction and was demonstrated to be the upper portion of an incompetent lateral superficial femoral vein, which entered the great saphenous vein on its lateral and anterior aspect almost at the saphenofemoral junction. The great saphenous vein was dilated some four times its normal size but was much smaller than the superficial femoral vein. Both were divided and ligated. The aneurysmal portion of the superficial femoral vein was excised, and 2 cc of a 5 per cent solution of sodium morrhuate was injected into the distal portion of this vein. A combined division, ligation, and injection of the great saphenous vein, together with separate division and ligation of its uppermost tributaries, were performed after a technic previously described.¹ Before closure of the incision the patient was asked to cough, and all evidence of venous bulging had disappeared. The patient was allowed to be ambulatory and was given subsequent injections of sclerosing solution in the office. The operation completely relieved her symptoms as well as all evidence of bulging in the left femoral region.

Case 2—A woman, aged 50, had had varicose veins in the left lower extremity for a period of five years. Three months previous to my examination she had noted a bulge in the left femoral region, and operation for left femoral hernia had been performed elsewhere. She made an uneventful convalescence following this operation, but on discharge from the hospital she noted the same bulge in her left femoral region. It was for this reason that I was consulted. My examination revealed a well woman who had moderate varicosities of the left lower extremities. These were associated with an incompetent great saphenous vein and a cirroid dilation of the proximal portion of this vein.

Under local anesthesia, the saphenofemoral junction was exposed, and a cirroid dilation of the proximal 4 to 5 cm of the great saphenous vein was found (Fig 1). This dilation was twelve to fourteen times the normal size of a great saphenous vein. Below the dilated area the saphenous vein was approximately four times its normal size. The entire aneurysmal dilation was excised, and a combined division, ligation, and injection of the great saphenous vein at the saphenofemoral junction were per-

formed. Four cubic centimeters of a 5 per cent sodium morrhuate solution was injected into the distal portion of the saphenous vein. Subsequent obliterative therapy was carried out in the office, and the patient has been completely relieved of her symptoms.

Comment

These circoid enlargements of the proximal portion of the saphenous vein or its associated tributaries are not uncommon findings. I believe these 2 cases serve to illustrate how such a condition can be mistaken for a femoral hernia.

It is possible that the two conditions might be associated, but in such instances differentiation would not be difficult. In each of these cases the same bulging and symptoms were present following herniotomy as were present before operation. I feel certain that it is safe to assume that the original diagnosis of the femoral hernia was incorrect. In each instance, I have confirmed this by communication with the physician who performed the operation for femoral hernia. This condition should be excluded in all cases in which the diagnosis of femoral hernia is considered, especially if varicosities are present in the involved extremity.

These 2 cases demonstrate the necessity for such consideration.

Tributaries

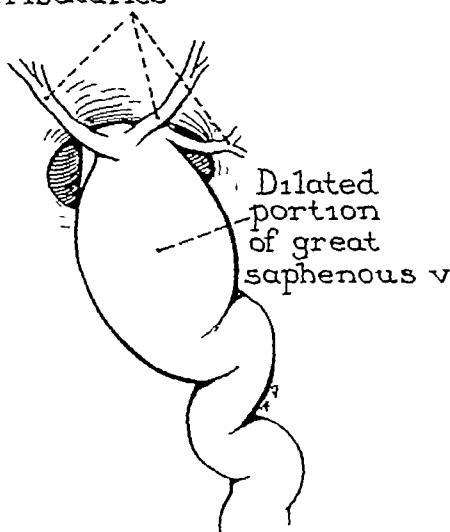


FIG 1 Venous aneurysm of proximal portion of great saphenous vein

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DOCTORS WHO FAVOR EUTHANASIA

More than 3,000 New York State physicians favor legalization of euthanasia or "merciful release" for sufferers from incurable disease who demand it, according to a poll by the Euthanasia Society of America, announced May 22 at the Society's annual meeting, held at its headquarters, 136 East 57th Street. Results of the poll were included in a report of the Society's Board of Directors presented by its president, Dr. Clarence C. Little, says the *New York Medical Week*.

Eighty per cent of the physicians of the state who replied to the Society's questionnaire stated that they believe the law should be amended to remove the penalty for criminal action now existing and permit physicians, with strict safeguards against abuse, to administer euthanasia to adult incurable sufferers.

In reply to a further question, "Is it a humane act for a physician to shorten the life of a patient suffering from an incurable painful disease like advanced inoperable cancer, who pleads with him to do so?" 3,144 physicians answered "Yes" and 337 "No."

"A measure demanded by such a large body of informed professional opinion deserves con-

sideration by the legislature of the state," the report pointed out.

Mrs. Leslie J. Tompkins, legislative chairman, stated in her report that the Society hopes to have introduced at the next session of the New York legislature a bill to legalize euthanasia.

The report of a Committee on Policy, read by Mrs. Louis deB. Moore, stated that a number of physicians have indicated that they favor broadening such a bill to legalize euthanasia administered by physicians to infants born grossly defective.

Among the New York City physicians who are serving on the Advisory Council of the Euthanasia Society of America are Drs. Theophilus P. Allen, Theodore Bliss, George L. Brodhead, Louis Carp, Russell L. Cecil, James A. Corcoran, Joshua W. Davies, Louis B. Dunn, John F. Erdmann, Frederick J. Farnell, John H. Garlock, Hirsch Loeb Gordon, R. Houghton Hooker, Lawrence S. Kubie, Max Lederer, Earle H. Mayne, Edwin P. Maynard, Harold R. Merwarth, Woodbridge E. Morris, N. P. Rathbun, Alan DeF. Smith, Philip Moen Stimson, Fenton Taylor, Giles W. Thomas, Norman E. Titus, and David M. Weeks.

Adequate rest is still the basis of all therapy of tuberculosis.—Charles K. Potter, M.D., *Contact*, February, 1941.

The Fourth Annual Forum on Allergy will be held in Detroit, Michigan on January 10 and 11, 1942.

Diagnosis

CLINICOPATHOLOGICAL CONFERENCES

DEPARTMENTS OF MEDICINE AND PATHOLOGY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, COLUMBIA UNIVERSITY

Date April 15, 1941

Presiding Dr Herman O Mosenthal

History

DR ROBERT McGRATH A 19-year-old, single, white woman was admitted to the hospital for the fourth time and died ten days later. The chief complaints at this time were hardening of the skin of five years' duration, dizziness, headaches, and shortness of breath for six months. The patient was well until the age of 13, when generalized weakness and lassitude developed. Examination by her family physician revealed an anemia for which iron was prescribed. There was no improvement, and she began to have attacks of diarrhea without melena lasting one or two days and unrelated to the iron medication. At the age of 14 she noticed stiffness of the hands, arms, and legs, for which she visited a clinic of another hospital where a fairly severe hypochromic anemia and scleroderma were noted. It was also observed that the hands became red and painful on exposure to cold. At that time the blood pressure was 110/80 mm Hg. Free hydrochloric acid was present in the gastric contents. The basal metabolic rate was 15 per cent below the average normal. The serum calcium was 10.8 mg per hundred cubic centimeters, phosphorus 4.9 mg per hundred cubic centimeters, and the icteric index was 7.5 units. X-rays of the skull and lungs were negative. The urine contained 0.15 mg of arsenic per liter and arsenic was found in the urine of both parents, but the source was not discovered.

The treatment consisted of the use of sodium thiosulfate and thyroid extract. The blood count soon returned to normal and arsenic disappeared from the urine. She was seen in the Vascular Clinic of the New York Post-Graduate Hospital at the age of 15 and was still complaining of stiffness of hands, arms, and legs. Mecholyl iontophoresis and pancreatic tissue extract (Depropanex) injections were started and for eight months she improved. Despite continued therapy, however, ulcers over the proximal interphalangeal

joints of both hands developed and the joints gradually became stiffer. At the age of 16, x-ray studies of the hands showed no significant pathology, but x-rays one year later showed narrowing of the joint spaces with capsular distention and generalized periarticular lime-salt deficiency. About this time she had a few attacks of diarrhea, each lasting two to three days and consisting of eight to seventeen watery stools a day. Occasionally, a rise in temperature was noted with these episodes. In the gastrointestinal clinic free hydrochloric acid was found in the gastric contents, and examination of the feces showed the presence of *Endolimax nana*. At the age of 17 she was admitted to the hospital on three occasions for manipulation of the fingers under anesthesia. The basal metabolism at this time was 2 per cent below the average normal. One year before the final admission she attended the clinic of another hospital for two months. Here a tachycardia was noted and the basal metabolism was 27 per cent above the average normal. X-ray studies revealed calcium deposits in the soft tissues of the left arm and the lower left femur, with decalcification of the shafts of the long bones. The blood pressure was 130/80 mm Hg. A hemithyroidectomy and parathyroidectomy were done in that institution and, on microscopic examination, revealed normal histologic structures. Preoperatively, the serum phosphorus was 3.9 mg per hundred cubic centimeters, and postoperatively it was 4.9 mg per hundred cubic centimeters with a serum calcium of 11.8 mg per hundred cubic centimeters. She soon returned to the New York Post-Graduate Hospital where mecholyl treatments were resumed. Her basal metabolism, serum calcium, and serum phosphorus were within normal limits at this time. Preceding the final admission she began to have episodes of dizziness and was seen in the cardiac clinic where her blood pressure was found to be elevated (160 mm Hg systolic). The electrocardiogram was normal except for tachycardia and a right axis deviation. The day before admission the blood pressure was recorded as 230/150 mm Hg. Of interest was

the presence of hypertension in both parents

Physical examination at the time of admission showed a poorly developed young woman with a masklike expression. The skin over the bridge of the nose and face was tightly drawn, smooth, shiny, and hard. A similar change was noted in the skin covering the hands, wrists, and upper thorax. A yellowish brown pigmentation was uniformly scattered over the skin of the entire body from the neck down. Examination of the fundi revealed moderately tortuous vessels with pallor of the disks. There was some limitation of excursion of the mandible due to the tension of the skin. A thyroidectomy scar was present in the neck. The lungs were clear. There was no cardiac enlargement. The rhythm was regular at a rate of 104 per minute. No murmurs were heard but A_2 was accentuated. The blood pressure was 220/152 mm Hg. The abdomen was not unusual. Examination of the extremities showed the fingers of both hands contracted at the proximal interphalangeal joints to 45 degrees with no extension beyond that position. The skin of the fingers was tightly drawn, transparent, and shiny. There was no limitation of motion in the wrist, but the patient was able to flex the knees to 45 degrees. Reflexes were normal.

Urinalysis on numerous occasions showed a specific gravity of 1.020 with 1 plus protein and, occasionally, a few granular and hyaline casts. Blood chemical studies, including uric acid, creatinine, calcium, phosphorus, and phosphatase, were within normal limits. The urea nitrogen was 16.5 mg per hundred cubic centimeters. The total serum proteins were 8.2 mg per hundred cubic centimeters, with albumin 3.9 and globulin 4.3 making an A/G ratio of 0.9. A glucose tolerance test was normal. The Wassermann reaction was negative.

The day after admission the patient had an episode of dizziness lasting ten minutes and vomited a large amount of greenish fluid. The ophthalmologic consultant reported bilateral papilledema, particularly of the right eye, arteriosclerosis, and edema of the retina. The blood pressure remained elevated (200/152) even after a test dose of 9 grains of sodium amytal. Five days after admission the patient developed a sore throat and later in the day complained of pain in the left anterior part of the chest. Examination revealed signs of consolidation in the lower lobe of the left lung, which was confirmed by x-

rays. The leukocytes rose to 21,500 with 82 per cent neutrophils. Despite a rapid respiratory rate and a slight cyanosis, the temperature remained about 100 F (38 C). Sulfapyridine therapy was instituted, but the patient failed to respond and died on the tenth hospital day.

Discussion

DR MAURICE BRUGER. A review of the history reveals some rather important leads. As you recall, about six years ago the possibility of chronic arsenic poisoning was entertained. Scleroderma was then noted for the first time, and during the several years that followed therapy was directed particularly toward treatment of the scleroderma. During the present admission, several additional findings were present. The patient had a marked systolic and diastolic hypertension, accentuation of the second aortic sound, tachycardia, pigmentation of the skin, and papilledema. Laboratory studies revealed proteinuria, cylindruria, and evidence of impairment of renal function. Unfortunately, the blood chemistry was not repeated before death occurred, so it is impossible to state with what rapidity renal insufficiency advanced. With the development of the pulmonary complications, a leukocytosis and secondary anemia occurred. Death was probably due to lobar pneumonia.

Now, with regard to the history of arsenic poisoning, in 1936 Moench¹ of Cornell published the case record of this patient as one of chronic arsenic poisoning associated with profound anemia and scleroderma. The patient's urine at that time contained 0.15 mg of arsenic per liter and, following treatment with sodium thiosulfate, a prompt and striking improvement occurred in the blood picture. Of course, it is conceivable that the patient had arsenic poisoning, but the amount of this metal found in the urine and the clinical response to thiosulfate certainly do not prove the point. A normal individual may excrete as much as 0.8 mg of arsenic per day depending on the type of diet consumed.² Moreover, recent work in this hospital has shown that sodium thiosulfate does not mobilize arsenic from body stores for urinary elimination.³ The presence of scleroderma at the

¹ Moench, L. M. *New York State J. Med.* 36: 1029 (July 15) 1936.

² Mattice, M. R., and Weisman, D. *Am. J. M. Sc.* 193: 413 (1937).

³ Mattice, M. R., Bant, H., and Byrne, J. M. *Arch. Dermat. & Syph.* 42: 399 (1940).

tume the diagnosis of chronic arsenic poisoning was made, however, is in favor of the latter diagnosis, since the two disorders have been associated according to some workers

The relation between scleroderma and Raynaud's syndrome is of more than casual interest. The peripheral vasospastic phenomena characteristic of Raynaud's syndrome may precede the scleroderma or follow it. Some authors⁴ feel an underlying parathyroid dysfunction accounts for both diseases, and I believe it must have been this concept that led to the parathyroidectomy in 1940. A thyroidectomy was done simultaneously, presumably to combat the hyperthyroid manifestations. The development of pigmentation and ulceration of the skin, arthritis and arthralgia, and decalcification of bone and calcium deposits in soft tissues are not uncommon in Raynaud's syndrome and scleroderma. The etiology of the diarrhea, however, is more puzzling, and it is problematic as to the part played by the nonpathogenic *Endothymox nana* in this complication.

The advent of a new train of symptoms—dyspnea, vertigo, and fatigue—in the past six months is of importance in evaluating the course of this disease. Physical and laboratory examinations during her last hospital admission revealed marked hypertension, retinal arteriosclerosis, edema of the retina, papilledema, proteinuria, cylindruria, and slight nitrogen retention. That some underlying diffuse vascular disease may account for this picture is further substantiated by the onset of acute cerebral and gastrointestinal manifestations. The history of scleroderma and Raynaud's syndrome strongly supports such a contention.

Assuming for a moment that a diffuse vascular disease involving particularly the smaller arteries and arterioles of the body is the basic disorder in this patient, can it be classified into a recognized subgroup? This, however, is extremely difficult, since the problem of generalized arterial and arteriolar disease is in a state of flux. Clinicians and pathologists recognize diffuse vascular disease in lupus erythematosus with or without the Libman-Sachs syndrome, in dermatomyositis, and in scleroderma. Periarteritis nodosa is a closely associated lesion. Better known forms, at least from an etiologic standpoint, are the generalized arteriosclerosis of benign hypertension and the necrotizing arteriolitis of malignant hypertension. As recent as March,

1941, Katzenstein and Murphy⁵ described a case of diffuse vascular disease (sclerosis of the small arteries without thrombosis) in a 22-year-old woman, the cause of which was entirely unknown. Clinically, the disease in this patient resembled bilateral renal cortical necrosis.

From the available clinical and laboratory evidence, I shall go no further than to state that this patient probably had a generalized vascular disease, the classification of which I should rather leave to Dr. Richter. I may venture to add, however, that the lesion may be the type generally found in patients with scleroderma.

Dr. Bruger's Diagnosis

Scleroderma

Generalized arterial and arteriolar disease.

Lobar pneumonia

DR. A. WILBUR DURYEE: I do not believe any patient was ever more completely studied in our Vascular Clinic. The acute change in her condition in the terminal state was an amazing thing. In scleroderma we are dealing first with some vascular lesion, and we know that many cases of scleroderma have manifestations in other organs such as the lung, spleen, and kidneys. But why this girl after five to six years of progression should suddenly complain of the symptoms of renal involvement is extremely interesting. What precipitated this change is hard to explain. Going back to the question of arsenic poisoning, the only evidence we have as to the cause is that she ate a great many berries that had been sprayed. The main treatment was the elimination of the berries from her diet. I have not seen the slides, but I will make a guess that the lesions seen in the kidneys, although she died a pneumonic death, were due to generalized vascular disease.

DR. CARL H. GREENE: I doubt if she had any primary disturbance of the parathyroid. Why was she operated on?

DR. DURYEE: She had heard about this operation and, being unsatisfied with our decision, she was determined to have it done. Several surgeons had reported encouraging results after parathyroidectomy, but we have failed to see persistently good results. Occasionally, there does appear to be improvement for a few months, but relapse has occurred in most cases that we have seen.

⁴ Bernheim, A. R. and Garlock, J. H. *Ann. Surg.* 101: 1012 (1933).

⁵ Katzenstein, R. and Murphy, J. P. *Arch. Int. Med.* 67: 379 (1941).

Pathologic Diagnoses

DR MAURICE N RICHTER The joints of the hands could not be examined at autopsy. The left knee joint showed no changes resembling chronic arthritis. Most of the organs showed little of interest in the gross examination. There was a comparatively mild pneumonic lesion and several organs were congested. The kidneys were red and had markedly granular surfaces. The heart was slightly enlarged, and there was an area of thickening in the endocardium beneath the posterior cusp of the mitral valve.

Microscopic examination of sections of the skin showed varying degrees of thickening and condensation of the collagenous connective tissue, with a change in the staining characteristic of the latter. The collagen was somewhat more basophilic than usual, and this change was noted in several of the organs.

The most important lesion, and one that was also found in several different organs, was a lesion of the blood vessels, especially the small and medium-sized arteries. This lesion was seen to best advantage in the arteries of the gallbladder but appeared also in the kidney and ovary. It consisted of an acute inflammatory reaction in the wall, sometimes involving the intima, sometimes the adventitia. The internal elastica was fairly well preserved. With Gram's stain there were strands that retained the dye in the walls of the involved arteries. This did not always have the appearance of fibrin.

In addition to the changes mentioned, there were lesions of arteriosclerosis present in the kidneys. Similar changes were seen in the arterioles of the spleen, pancreas, perirenal fat, ovary, and submucosa of the in-

testine. In the spleen the lesion was marked.

The thyroid gland was in the colloid stage and was similar microscopically to that removed surgically a year ago.

A few small foci of necrosis were seen in the myocardium. In the rectus abdominis there were a few areas with altered staining of the connective tissues and nuclei of sheath cells of atrophied muscle fibers.

It seems likely that in this case we are dealing with a diffuse arteritis associated with scleroderma, that arteritis in the kidney led to hypertension, and that there developed, subsequently, generalized arteriosclerosis as is commonly found associated with hypertension.

Anatomic Diagnoses

Scleroderma

Ankylosis of fingers

Acute arteritis of gallbladder, kidney, and ovary

Hypertension, clinical

Generalized arteriolonecrosis

Arteriosclerotic atrophy of kidneys

Cardiac hypertrophy

Lobular pneumonia

DR BENJAMIN SILBERG What was the character of the lesion on the mitral valve?

DR RICHTER The lesion was an area of endocardial thickening below the mitral valve, presumably the result of a previous mitral endocarditis.

Editorial Committee

J SCOTT BUTTERWORTH, M D

MAURICE R CHASSIN, M D

HERMAN O MOSENTHAL, M D, *Chairman*

OUT OF THE BLACK BAG

The doctor had two children who were acknowledged the prettiest in the district.

While out walking one day, they passed two small boys. One lived in the village and the other was a visitor.

"I say," said the latter, "who are those little girls?"

"They are the doctor's children," replied the village boy. "He always keeps the best for himself."

—*Canadian Doctor*

SAFETY FIRST

The doctor had advertised for a secretary and among the applicants was a young lady of undeniable beauty and graceful figure.

"And where were you employed previously?"

"In a doll factory," was the reply.

"And what were your duties?"

"Making eyes."

"Well, said the doctor, "you're engaged, but forget your old job when my wife is around."

—*Exchange*

ADVICE TO MEDICAL STUDENTS

"Be true to yourselves, your patients, and your profession, and some day you will be proud

of your profession and your profession will be proud of you."

—*J M Hayes, M D*

Abstracts of Proceedings
of the
NEW YORK PATHOLOGICAL SOCIETY

REGULAR MEETING, MARCH 27, 1941

DR JEAN OLIVER, *President*

DR JOHN M PEARCE, *Secretary*

Histologic Changes Produced in Squamous-Cell Epithelioma of the Mouth and Oropharynx by Fractionated External Irradiation Dr John W Hall *(by invitation)* and Dr Milton Friedman *(by invitation)*

A detailed histologic study was made of tissue obtained from 28 patients with squamous-cell epithelioma of the mouth and oropharynx who had been treated with the protracted fractionated method of irradiation (Coutard technic). An average of five biopsy specimens, including one taken before treatment, was secured from each patient.

The histologic changes observed in the tumor tissue following irradiation were of three types: (1) acute cell death, (2) formation of giant-sized tumor cells, (3) irradiation keratogenesis, i.e., the acceleration of the keratinization process in keratinizing and keratinized cells.

The process of acute cell death, occurring in radiosensitive cells, was most marked during the first seven days after the beginning of treatment, although evidences of this process were still visible up to the fourteenth day. While emphasis has been given to the process of tumor cell degeneration by the formation of giant-sized cells, nevertheless, acute cell death accounts for the destruction of a plurality of cells. The most prominent histologic evidence of degeneration seen in acute cell death is karyolysis, although to a less extent one sees pyknosis of the nuclei and slight swelling of the cytoplasm.

The formation of giant-sized tumor cells occurred if the cells were less radiosensitive. There were two types of giant-sized cells, depending on the part of the cell—cytoplasm or nucleus—primarily affected. When the irradiation primarily affected the cytoplasm, there resulted cells measuring up to 180 micra in greatest diameter, showing marked swelling and vacuolization of the cytoplasm. When the nucleus was primarily affected, there resulted giant-sized tumor cells representing mutation forms produced either by changes in the structure of the chromosomes

or by disturbance in cell division. These nuclear changes were of two types: either giant-sized nuclei varying markedly in shape and chromatism or multinucleation.

The process of radiation keratogenesis was either rapid (acute) or slow. In several instances of acute keratogenesis practically all of the cells showed various degrees of keratinization by the ninth day, and biopsy material obtained at later dates showed only masses of keratin surrounded by multinucleated foreign body giant cells lying in a dense connective tissue stroma. Where the process of radiation keratogenesis was less rapid because of greater radioresistance of the cells or because of inadequate irradiation, the process of keratinization was incomplete. Radiation keratogenesis also occurred in the overlying normal epidermis or mucous membrane epithelium. While the process in these tissues was slower, requiring twenty-one to twenty-five days, desquamation finally occurred when the keratinization process involved all the cell layers, including the basal cells.

In radioresistant cells only slight swelling and vacuolization occurred. These changes seemed to be transient.

In tissues obtained from 8 of the 28 patients, squamous metaplasia of the submucous salivary gland epithelium was observed. In a few instances this process was so marked that the metaplastic epithelium itself was hyperplastic.

Discussion

DR JEAN OLIVER: Have any experiments been done which combine colchicine treatment and x-ray therapy, colchicine arresting mitotic figures to a certain point, letting them heap up, the x-ray thereby affecting many more mitotic figures than would normally happen?

DR JOHN W HALL Several experiments have been reported concerning the combined effect of colchicine and x-ray therapy upon animal tumors. Some of these experiments indicate that colchicine is either ineffective in enhancing the action of x-rays on tumors or does not strikingly increase the destructive effect of the x-ray therapy.

DR PAUL KLEMPERER In the tumors that showed the cytoplasmic changes, the keratinization, and the giant forms, did you pay attention to whether mitoses were found in such cells? Do these cytoplasmic changes indicate that the process of degeneration is irreversible?

DR HALL We have noted a few abnormal mitotic figures in the giant-sized tumor cells. Their number appears to be dependent upon the time when the biopsy specimen was removed. During the first week there was an increase in the number of mitotic figures and abnormal forms began to appear. Thereafter the mitotic figures became almost exclusively abnormal in form, gradually diminished in number, and in some instances disappeared entirely. We are of the opinion that the giant-sized tumor cells are degenerating forms and will eventually die out because of failure to multiply. Further evidence substantiating this belief is the fact that, if the neoplasm recurs, the histologic appearance in the recur-

rence is that of the original tumor before irradiation treatment.

DR ALFRED ANGRIST I wonder whether the factor of control of the nature of the biopsy was employed. So often we get such variable pictures, and dependence alone on punch biopsies has always been a problem in attempting to evaluate tumors.

I wonder whether in these extensive studies any thought, however tenuous, as to any biologic factors can be advanced for explaining these changes. Have the authors anything to contribute in this regard?

DR HALL I am not sure that I understand the nature of the question, but as far as biopsies are concerned we realize the possibility of making mistakes. However, we have attempted to overcome this by taking pieces of tissue from various areas of the tumor, having taken as many as one to four pieces of tumor tissue from different areas, with an average of two. For instance, if the tumor began in the tonsillar pillar region and extended to the tongue, we took sections of the tonsillar pillar region and also of the tongue. The biopsy material I think was larger than is usually taken. I would say each individual piece averaged 8 by 6 mm. Occasionally, pieces were as large as 1.2 by 1 cm, so that many times punch biopsy was not used but the tissue was removed by means of a scalpel.

Tumors of the Eye Dr. A. B. Reese {by invitation}

Benign melanomas of the choroid are fairly common. They are frequently overlooked clinically. Malignant melanomas may arise from these benign lesions. The clinical and histologic characteristics of these tumors were discussed. The only other place where the type cell is seen, from which the melanoma of the uveal tract arises, is in the mongolian spot and the blue nevus. The malignant melanoma arising in the choroid, therefore, is not comparable to the malignant melanoma arising elsewhere over the body. The mortality for this tumor of the uvea after enucleation was about 50 per cent in a series of 350 cases of the Army Medical Museum after a five-year follow-up. The argyrophil fiber content seems to be a good criterion of the degree of malignancy. Similar benign and malignant melanomas are also encountered in the ciliary body and iris but much less frequently.

The retinoblastoma (retinal gloma) occurs in children, 25 per cent are bilateral by multiple origin and not by extension. Calcium deposition is common, and the tumor tends to invade the optic nerve. The tumor proves fatal

by direct extension to the brain via the optic nerve or by distal metastases to the bones. The mortality after enucleation was 52 per cent in a series of 95 cases from the Army Medical Museum after a five-year follow-up.

Metastatic carcinoma to the uveal tract is more frequently primary in the breast, thyroid gland, lungs, and stomach. It is not uncommon to have a metastatic carcinoma manifest itself in the eye before the primary site is diagnosed.

Among the rarer intraocular tumors are benign adenoma of the ciliary body, hemangioma of the choroid, and neurofibroma of the uvea.

The tumors of the lids and orbit, in the order of their frequency, were mentioned.

Stress was placed upon the importance of precancerous melanosis of the conjunctiva as the forerunner of malignant melanoma of the conjunctiva. This appears as a diffuse, flat pigmentation in middle-aged individuals. After several years it becomes malignant and has the same unfortunate prognosis as malignant melanoma in general, unless a radical

exenteration of the orbit is done early in the disease

Congenital nevi of the conjunctiva, comparable to the neurogenic nevi of the skin, are common and do not lead to malignant melanomas

Slides illustrating the various types of tumors and their characteristics were shown

Discussion

DR ANDREA SACCONI About ten years ago a patient 70 years of age was treated in the Metropolitan Hospital. The eye was enucleated because there was a neoplastic mass in the internal region of the cornea, invading the sclera. Histologic examination showed a squamous-cell carcinoma. The slide was also examined by Dr Ewing. After three weeks the patient died of hypostatic pneumonia. A most careful examination at autopsy failed to show any other focus for the carcinoma, so we concluded that the squamous-cell tumor was a primary carcinoma of the cornea.

DR JEAN OLIVER I was going to ask Dr Reese about tumors of the cornea, I notice he did not mention them

DR A. B. REESE We practically never see tumors primary in the cornea. Bowen's disease or an intraepithelial epithelioma is sometimes encountered. I have seen 2 regular epitheliomas of the cornea, both of which developed as a later complication in the base of a corneal ulcer. One of the patients had xeroderma pigmentosum. Usually, tumors are primary at the limbus and spread secondarily onto the cornea. Such tumors are sometimes referred to incorrectly as a corneal tumor.

DR ALFRED ANGRIST I wonder whether your experience with these tumors of the eye in the melanoma group has ever offered any information to explain the known tendency for long intervals to elapse before metastases become manifest in this group. As a corollary to that question, why is a metastatic focus so often so extensive and occasionally entirely limited to the liver with no other area involved? I have had several cases of that type. Is there any explanation for it?

DR REESE It is amazing that a malignant melanoma of the uveal tract may apparently manifest itself in the liver even twenty-five years after an enucleation. I have no explanation.

POLITICS THREATENING HEALTH

The politicians are trying to meddle with the people's health and with the practice of medicine, so why shouldn't the doctor take a hand in political matters? No group outside the medical profession, says a writer in *Radiology*, "is competent to guide the policies of the government in matters of health. It is the responsibility of the medical profession to provide this guidance. Under our system of government there is one way, and only one way, that such responsibility can be exercised—and that is through political effort."

"Two points must be understood if the political effort of individual doctors and medical organizations is going to have any effect upon the policies of the government. To appreciate them fully, it is going to be necessary that some firmly settled illusions be discarded. First, local politics is much more important than national

politics. Second, the primary is vastly more important than the general election. Any citizen can exert a great deal more influence upon the political trends of the national government by quietly interesting himself in the politics of his own neighborhood precinct than he can by writing brilliant letters to his congressman. Furthermore, he will find that the time to convince a politician regarding any fundamental issue is before the election and not afterward.

"These are stirring times in America—times during which the cloak of 'national defense' can be used to usher in radical innovations in the function of the national government. Now is the time for all good doctors to come to the aid of their nation. They can aid their country and protect the interests of the people by once more occupying a prominent place in the civic and political life of the community."

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF ORAL DIAGNOSIS

The Eighth Annual Congress of the American Association for the Advancement of Oral Diagnosis will be held in New York City on November 13 and 14 at The New York Academy of Medicine.

The papers, discussions, and exhibits will cover oral diagnosis, with special attention given to

the basic sciences as related to oral diagnosis.

Members of the medical and dental professions in the United States and countries of the Western Hemisphere are cordially invited to attend. Programs may be obtained by communicating with the secretary, Dr H. Justin Ross, 515 Madison Avenue, New York City, New York.

Thirty-Fifth Annual Meeting of the District Branches of the Medical Society of the State of New York

PROGRAM

Third District Branch

Tuesday, September 30, 1941
Saulpaugh Hotel
Catskill, New York

Morning Session—10 00 A.M.

General program of activities of the State Society and their relations to the county societies, as presented by the officers of the State Society

Mahlon H. Atkinson, M.D., Catskill, *president of the Third District Branch, presiding*

Samuel J. Kopetzky, M.D., New York City, *president of the Medical Society of the State of New York*

Advantages of Organization

Peter Irving, M.D., New York City, *secretary and general manager of the State Society*

How the general activities of the Society are put into motion. The council and committee organization. Duties. *New York State Journal of Medicine Medical Directory of New York, New Jersey and Connecticut*

Edward T. Wentworth, M.D., Rochester, *chairman of the Finance Committee*

John L. Bauer, M.D., Brooklyn, *chairman of the Committee on Legislation*

Joseph S. Lawrence, M.D., Albany, *executive officer*

Nothing is more important to medical men than legislation that affects their patients or themselves. Hence, the chairman of the legislative committee must be one who will give all necessary time to the job. He and his associates on the committee must cultivate the friendship of the local boss, the members of their local bar association, and of the legislators. Keep the legislators informed on the attitude of organized medicine on bills under consideration. Keep Dr. Lawrence informed on the attitude of the legislators as observed at their homes.

Augustus J. Hambrook, M.D., Troy, *chairman of the Committee on Public Relations and Economics*

Thoughtful consideration of the relations with other agencies, official and unofficial, is most essential. Conferences with representatives of state departments for adjustment of programs are frequent. Occasionally

our advice is sought by representatives of Federal agencies. Many demands have been made upon this committee to help interpret and administer the Welfare Law. Leadership in all community programs that relate to public health or the practice of medicine should be the constructive objective of every county society.

O. W. H. Mitchell, M.D., Syracuse, *chairman of the Committee on Public Health and Education*

Dr. Mitchell will briefly present the program of this committee for the coming year. The numerous activities require the attention of several subcommittees, and their organization and functions will be described. Postgraduate instruction will be especially considered and a copy of the recently revised *Course Outline Book* will be available for every county society desiring one.

Floyd S. Winslow, M.D., Rochester, *chairman of the Committee on Medical Publicity*

Mr. Dwight Anderson, New York City, *director of the Public Relations Bureau*

The aim of the committee is to fulfill the following purpose expressed in the Society's Constitution: "To enlighten and direct public opinion in regard to the problems of medicine and health for the best interests of the people of the State." Principal means used are newspaper releases, printed matter for direct distribution, radio, and service bulletins to physicians and laymen.

Clarence G. Bandler, M.D., New York City, *chairman of the Committee on Workmen's Compensation*

David J. Kalish, M.D., New York City, *director of the Workmen's Compensation Bureau*

Recent amendments and court decisions involving the Compensation Law, and the rights of physicians and responsibilities of the compensation committees.

Clarence G. Bandler, M.D., New York City, *chairman of the Committee on Malpractice, Defense and Insurance*

Our counsel is the most expert in this line.

of legal activity and defense has been more than adequate. The background for the majority of malpractice actions has been loose, unwarranted, and frequently thoughtless criticism by fellow members of their confreres. This phase of medical practice should be vigorously attacked in every community in order to set up an effective barrier against unfortunate and unjust claims.

Mr. Lorenz J. Brosnan, New York City, *Counsel for the Medical Society of the State of New York*

1 00 P M Luncheon and Introduction of Guests

Afternoon Session—2 30 P M

Group Conferences

The physicians will break up into different groups so that the chairmen of committees of the seven component county societies can meet in conference with the chairmen of the corresponding council committees.

Fourth District Branch

Friday and Saturday, September 26 and 27, 1941

Lake Placid Club

Lake Placid, New York

Friday, September 26 2 00 P M Daylight Saving Time

Symposium on Tuberculosis

"Tuberculosis Control and Case Finding in a Rural Community"

Richard Nauen, M D, Ray Brook, N Y, *senior tuberculosis physician, Outpatient Department, Ray Brook State Hospital*

A brief exposition of the principles underlying case-finding and the control of tuberculosis, and their practical application in the Ray Brook Hospital District, with a short summary of the results.

"Tuberculosis in Industry"

Beverly L. Vosburgh, M D, Schenectady, *medical director, General Electric Company*

This paper will discuss tuberculosis and related medical problems of industry.

"Management of Pulmonary Tuberculosis"

Fred H. Heise, M D, Trudeau, N Y, *medical director, Trudeau Sanatorium*

Pulmonary tuberculosis may exist without symptoms or physical signs and may exist where there is a known disability from another cause. Painstaking care in the education of the patient in the ways and wherefores of treatment is essential. Tuberculosis is a chronic disease and much of the treatment must be carried out by the patient himself.

"Surgery in Pulmonary Tuberculosis"

Warner Woodruff, M D, Saranac Lake, N Y

The judicious use of surgery in suitable cases is of great value in the treatment of pulmonary tuberculosis. The indications for the various types of procedures will be discussed with illustrations.

Evening Session—7 00 P M

Dinner

Address by Samuel J. Kopetzky, M D, New York City, *president, Medical Society of the State of New York*

Entertainment

The Schenectady County Medical Society Orchestra and an outstanding speaker

Saturday, September 27 9 30 A M

Symposium on War Surgery

"Blood Studies in Shock as a Guide to Therapy" [with motion pictures on (a) shock and (b) blood and plasma]

John Scudder, M D, New York City, *Department of Surgery, College of Physicians and Surgeons, Columbia University*

Certain tests, of more value than blood pressure determination in the anticipation of shock, measure loss of fluid from the blood—hemococoncentration (1) specific gravity of peripheral blood, (2) cell volume as determined by the hematocrit, (3) specific gravity of the plasma, (4) estimation of total plasma proteins. These tests give objective evidence of whether more fluid should be given or whether fluid therapy should be stopped.

"War Wounds of the Extremities with and Without Involvement of the Bony Structures"

Lieut.-Col. George A. Koenig, M D, Fort Jay, N Y, *clinical professor of surgery, New York University*

The paper will cover the methods of treatment in the first World War and show the development of the improved methods used in the present war, especially in regard to prophylaxis, transportation, chemotherapy, immobilization of fracture cases and evacuation.

"The Problem of Burns in Warfare"

John M. Converse, M D, New York City, *clinical assistant, Plastic Surgery, St. Luke's Hospital*

Entertainment

The Women's Auxiliary of Essex County has planned a ride up Whiteface for Friday afternoon for the ladies.

At the conclusion of the Saturday morning program a picnic lunch will be served to all attending the meeting, on Moose Island in Lake Placid. The autumn colors should be beautiful at this time.

DISTRICT BRANCH MEETINGS

1879

Eighth District Branch

(This is its thirty-sixth annual meeting)

Thursday, October 2, 1941

Hotel Jamestown
Jamestown, New York

Morning Session—9 30 A.M.

Motion pictures with sound accompaniment
These films have been lent by Mead Johnson & Company and prepared by the authors as noted below

1 "Appendicitis"

Joseph Brennemann, M.D., Chicago, emeritus professor of pediatrics, Rush Medical School, chief of staff, Children's Memorial Hospital, editor, Brennemann System of Pediatrics

2 "Pneumonia"

Isaac Arthur Abt, M.D., Chicago, professor of pediatrics, Northwestern Medical School, and chief of service, Sarah Morris Hospital for Children

10 30 A.M.—Scientific Papers

"The Injection Treatment of Varicose Veins"

Herman E. Pearse, M.D., assistant professor of Surgery, University of Rochester School of Medicine

The speaker is well qualified to discuss the various aspects of this practical subject from both the standpoint of indications and technique as adapted to the different types of cases

"Amputations Through the Hand"

J. Harold Couch, M.A., F.R.C.S., Department of Surgery, University of Toronto

Amputations through the fingers are the most unsatisfactory amputations that surgeons perform. Many patients return demanding reamputation. This speaker has written a book on this subject and will accompany his presentation with a colored motion picture demonstrating the optimum levels to amputate in the various parts of the hand for the best functional result

"The Clinical Use of the Sulfonamide Group of Drugs"

W. Barry Wood, Jr., M.D., associate in the department of medicine and associate physician to the Johns Hopkins Hospital

The sulfonamide group of drugs will be discussed as it applies to the physician in general

practice. A list of diseases which can be helped by each drug will be given. The method of use including dosage will be outlined in detail.

12 30 P.M. Luncheon and Introduction of Guests

Afternoon Session—2 00 P.M.

Business Meeting—Election of Officers

"Critical Review of Procedures of Active and Passive Immunization"

John A. Toomey, M.D., Cleveland, chairman, National Committee of Immunization Procedures, professor of pediatrics, Western Reserve Medical School, director of the department of contagious diseases, Cleveland City Hospital

Dr. Toomey's many years of experience in research and the practical application of immunological problems have made him an authority on the subject

"Pathology of Uterine Cervix as Encountered in General Practice"

James E. King, M.D., gynecologist-in-chief, Buffalo General Hospital, professor of gynecology, University of Buffalo School of Medicine

Many conditions in women arising from cervical pathology should be recognized and treated by the general practitioner. An attempt is made to visualize some of the common pathology and to indicate how by its recognition a rational treatment may be employed

Entertainment for Ladies

All doctors' wives are invited to attend. A most interesting trip through the Furniture Exposition Building has been arranged. On the eight floors are displayed examples of the various periods of furniture design. Luncheon with the doctors has been arranged at the Hotel Jamestown.

ONE SIGN, ANYWAY

The honeymoon over, the timid bridegroom began cleaning his thick eyeglasses. "Darling," he said, "I have a confession to make. I want to tell you I am color blind!"
Answer "Yo sho am, honey chile"

—Medical World

OVERSHOT THE MARK

Patient "Well, have any of your childhood ambitions been realized doctor?"
Doctor (father of large family) "At least one of them—it was always my desire to wear long trousers, and now I believe I wear them longer than anybody else"

—The Canadian Doctor

Medical News

County News

Cortland County

A scale of medical fees for doctors caring for patients who are receiving county welfare was approved on August 6 by the board of supervisors. The county has been divided into zones where certain rates for home calls apply. A doctor in one zone answering a call in another where there is a physician will be paid the minimum for that zone.

Office calls for indigent patients will cost the county \$1, home calls within 1 mile radius of the physician nearest to the patient, \$2, calls between 1 and 8 miles, \$3, and for calls more than 8 miles, \$4. There are very few parts of the county where patients are more than 8 miles from the nearest physician and the \$4 fee will be rare.

If a patient living in one zone where there is a doctor within a mile of his home, desires a physician who has to travel 5 miles, the county will pay only \$2, the rate for 1 mile.

Greene County

Despite the efforts of the members of the Greene County Tuberculosis and Public Health Committee, and the presentation of a petition signed by the physicians of the county medical society, recommending the appropriation of the sum of \$4,059 to provide additional nursing service for the county, a motion introduced for this purpose at the regular meeting of the County Board of Supervisors on August 11 was defeated by a vote of 8 to 6.

Jefferson County

Dr Gilbert A Foote, aged 82, who retired from the active practice of medicine a year ago after a medical career of nearly fifty-three years, died on August 17 at his home in Dexter after an illness of only eleven days. Death was caused by angina pectoris.

Dr Foote, one of Jefferson county's oldest physicians and one of the best known residents of Dexter, was vice president of the First National Bank of that village and had been a director of the institution for the past thirty-five years.

In addition to maintaining a private practice, Dr Foote served as health officer of the town and village for forty-five years.

Kings County

Dr Philip I Nash, for many years active in the Coney Island community, was honored at a testimonial dinner on the final night of the Mardi Gras, September 13, at the Half Moon Hotel, Coney Island.

Dr Nash, medical examiner of the District Attorney's office, was the first president of the Coney Island Chamber of Commerce and held that office for five consecutive years. During his tenure many improvements were made in the seashore community.

During the forty years he has been a practicing physician at Coney Island he has been chairman of the medical board of the Coney

Island Hospital for the past thirty-five years. He also has served in a similar capacity at Harbor Hospital in Bensonhurst for many years. He was formerly president of the Kings County Medical Society and at one time taught medicine at Long Island College Hospital. Dr Nash also is an active member of the American College of Surgeons.

Dr Henry Joachim, a specialist in internal medicine, who was president of the Kings County Medical Society in 1936, died on August 13 in his apartment in the Waldorf-Astoria Tower after a long illness. He was 58 years old.

Monroe County

Anticipating a possible shortage of doctors for military and civilian defense needs, University of Rochester's School of Medicine and Dentistry announced recently that it was admitting sixty-five new students, the largest entering class in its history.

Twenty-two colleges and seventeen states are represented in the group, chosen from more than 800 applicants.

Nassau County

Long Beach's physicians are now taking an active part in the nation-wide defense drive, it is revealed with the announcement that the county medical society has appointed a Medical Defense Corps for the district embracing the islands of Long Beach and Island Park.

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The "pay your doctor" plan, available for the settlement of both doctors' and dentists' bills, is to obtain a personal loan from a bank, pay the bill in full and then pay off the loan conveniently in small weekly or monthly payments.

The program had the approval of the public relations committees of the Nassau County Medical Society and the Nassau County Dental Society. A similar program has proved popular in New York City, where doctors and dentists having thousands of dollars due them in uncollected bills have arranged for their patients to pay off these amounts in small payments to banks.

The plan is reported to be popular with both doctors and dentists and their patients.

New York County

The county society's Special Committee on Child Welfare in the past year has considered several practical methods to protect children against disease, says the *Medical Week*. A very important one is the examination of domestic servants. Physical examination before employment, including x-ray of the chest, would uncover many cases of tuberculosis, and prevent its spread to previously uninfected households.

Periodic tuberculin tests would also help to eliminate phthisis in children. A routine tuberculin test on every child examined in the clinics or admitted to the wards would provide an excellent vantage point for a continuous drive against tuberculosis in childhood.

The care of cardiopathic children today leaves much to be desired. It is a sad reflection on the prevailing sense of values that, with money spent like water on all kinds of nonessential projects, there are not enough hospital beds to house the great number of children crippled by rheumatic fever. Weapons of war are important—but it must not be forgotten that rheumatic fever is almost as destructive of life and hope as Hitler. Proper care of these children would prevent many deaths in middle age, when man should be at the height of his productivity.

Even more than at other ages, in childhood the goal should be prevention and early detection of diseases. For this reason the county society's Special Committee on Child Welfare has tried to supply physicians for the examination of high school students. Experience has proved, however, that this task is too big for voluntary contributions of time. The medical men who volunteered were called upon to make too many examinations at each session for satisfactory performance. This is a service which self-supporting families should provide for their own children and the city for the medically indigent.

It is obviously impossible, in a brief space to touch on all the questions related to child welfare in a community the size of ours. Undaunted by their number and complexity, the county society's Special Committee has endeavored "to investigate as many problems as possible in this field." Many medical and social welfare

agencies will testify that it has done yeoman's service in pursuit of this aim.

Oneida County

The annual outing of the Syracuse Academy of Medicine and the Utica Academy of Medicine will be held at the Teugega Golf Club, Rome, Thursday, September 18.

The Syracuse Academy will act as host and furnish the program—golf followed by dinner.

St. Lawrence County

The county society held its last social meeting of the year at the Gouverneur Country club on August 28. The staff of the VanDuzee hospital were hosts and a program of golf and cards was scheduled for the afternoon.

Steuben County

Following a week's illness at Bath Hospital, Dr. Deyo Palmer Mathewson, aged 72, died on August 19. He had been in feeble health for two years, but his last illness was of but a few days' duration.

He had been active in practice in Steuben County about fifty years.

Dr. Mathewson was several years superintendent of the former county institution, the Pleasant Valley Sanitarium for tuberculosis patients at Bath, resigning because of ill health six years ago. He was a former president of the county medical society and had served as health officer in Bath town and village.

Wayne County

The Wayne County Medical Society held its August meeting at the Wayne County Health Camp on Lake Ontario, Town of Sodus. About sixty doctors and guests attended.

Dinner was served in the main dining room by the regular camp officers. Before dinner there was an inspection. There were ninety-two children present when the visit was made, and Dr. Ralph Sheldon, committee president, explained that there were ninety-six children there the first month. Children have gained from one to eight pounds in weight.

Operation of the camp is in the hands of six counsellors, a trained nurse, and the director Dr. Sheldon, besides being president, serves as medical supervisor.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Constantine Carusos	59	Greece	June 8	Manhattan
Alfonso Castelli	70	Palermo	August 24	Manhattan
Gilbert A. Foote	82	N Y Univ	August 17	Dexter
Henry Joachim	58	Cornell	August 18	Manhattan
Ludwig Kast	64	Prague	August 14	Manhattan
Deyo P. Mathewson	72	N Y Univ	August 19	Bath
Arthur L. Sherman	64	P & S N Y	August 24	Manhattan
Max Sonkin	48	Univ & Bell	June 13	Manhattan
Walter S. Woodruff	58	Michigan	August 19	New Rochelle
Jerome M. Ziegler	47	P & S N Y	August 25	Manhattan

Medical News

County News

Cortland County

A scale of medical fees for doctors caring for patients who are receiving county welfare was approved on August 6 by the board of supervisors. The county has been divided into zones where certain rates for home calls apply. A doctor in one zone answering a call in another where there is a physician will be paid the minimum for that zone.

Office calls for indigent patients will cost the county \$1, home calls within 1 mile radius of the physician nearest to the patient, \$2, calls between 1 and 8 miles, \$3, and for calls more than 8 miles, \$4. There are very few parts of the county where patients are more than 8 miles from the nearest physician and the \$4 fee will be rare.

If a patient living in one zone where there is a doctor within a mile of his home, desires a physician who has to travel 5 miles, the county will pay only \$2, the rate for 1 mile.

Greene County

Despite the efforts of the members of the Greene County Tuberculosis and Public Health Committee, and the presentation of a petition signed by the physicians of the county medical society, recommending the appropriation of the sum of \$4,059 to provide additional nursing service for the county, a motion introduced for this purpose at the regular meeting of the County Board of Supervisors on August 11 was defeated by a vote of 8 to 6.

Jefferson County

Dr Gilbert A Foote, aged 82, who retired from the active practice of medicine a year ago after a medical career of nearly fifty-three years, died on August 17 at his home in Dexter after an illness of only eleven days. Death was caused by angina pectoris.

Dr Foote, one of Jefferson county's oldest physicians and one of the best known residents of Dexter, was vice president of the First National Bank of that village and had been a director of the institution for the past thirty-five years.

In addition to maintaining a private practice, Dr Foote served as health officer of the town and village for forty-five years.

Kings County

Dr Philip I Nash, for many years active in the Coney Island community, was honored at a testimonial dinner on the final night of the Mardi Gras, September 13, at the Half Moon Hotel, Coney Island.

Dr Nash, medical examiner of the District Attorney's office, was the first president of the Coney Island Chamber of Commerce and held that office for five consecutive years. During his tenure many improvements were made in the seashore community.

During the forty years he has been a practicing physician at Coney Island he has been chairman of the medical board of the Coney

Island Hospital for the past thirty-five years. He also has served in a similar capacity at the Harbor Hospital in Bensonhurst for many years. He was formerly president of the Kings County Medical Society and at one time taught medicine at Long Island College Hospital. Dr Nash also is an active member of the American College of Surgeons.

Dr Henry Joachim, a specialist in internal medicine, who was president of the Kings County Medical Society in 1936, died on August 18 in his apartment in the Waldorf-Astoria Towers after a long illness. He was 58 years old.

Monroe County

Anticipating a possible shortage of doctors for military and civilian defense needs, University of Rochester's School of Medicine and Dentistry announced recently that it was admitting sixty-five new students, the largest entering class in its history.

Twenty-two colleges and seventeen states are represented in the group, chosen from more than 800 applicants.

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Small matters of attention may be often overlooked in

planning the all-important regime for a particular patient and illness. We may forget that as a rule the sick person is a self-centered being who is seldom very considerate of the endurance of others. The sick one wants attention—wants it immediately and without reservation. And he ought to have it.

Sanitariums and Nursing Homes generally, place great importance on their provisions to provide day and night care for patients. Keeping the patient occupied during waking hours and more contented during sleeping hours to assure beneficial rest is as necessary to the efficiency of the institution as are comfortable and quiet rooms.

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Medical Preparedness

Emergency Medical Service for Civilian Defense

THE Medical Division of the Office of Civilian Defense has issued its first bulletin from Washington, D C The material therein is general in scope and relates to the appointment of local chiefs of Emergency Medical Service and Local Medical Advisory Councils on Civilian Defense The State Defense Council has already discussed these recommendations as they relate to New York State with Dr George Baehr, chief medical officer of the Office of Civilian Defense, who is also a member of our Preparedness Commission He is thoroughly familiar with the present State Health Defense Administrative setup, in which field a great deal of work has already been done under the chairmanship of the Hon Lee B Mailer The place for emergency medical services centers

around hospitals where it properly belongs

The Medical Division of the Office of Civilian Defense has already established harmonious working relationships with the New York State Health Preparedness Commission, which is the official body of the State Defense Council dealing with medical and health matters relating to defense in the State of New York It is stated that the plan proposed by the Office of Civilian Defense will be worked out shortly with this official state group and through channels already established and now functioning

There should be little or no confusion or conflict in this state in applying this plan It emanates from federal sources as a master plan and bears the official stamp of approval by the President

The Doctor in the Navy

FOR every two thousand officers and men in the navy and marine corps the authorized allowance of medical officers is thirteen With the present great expansion of the navy, therefore, there has been a greatly increased need for doctors Many young doctors have joined the regular navy and the naval reserve and many of the older doctors with specialist qualifications have joined the specialist group of the reserve There are still a number of vacancies both in the regular navy and the reserve

To qualify for the regular navy doctors must be between 21 and 32 years of age and have completed at least one year of internship Medical students may take an examination sometime during their third or fourth year for an internship in one of the naval hospitals accredited for the training of interns At the end of internship they are eligible to enter the regular navy

For the medical corps of the reserve, doctors up to 50 years of age may apply If under 35 they are eligible for the general service group If between 35 and 50 they are eligible only for the specialist group The specialist group is organized into hospital units composed of eight different specialists and one dentist It is not the Navy Department's intention to call these groups to active duty except in case of general mobilization

The rank offered to doctors varies with their age, experience, and professional repute Those entering the regular navy and the general service group of the reserve are commissioned as lieutenant (junior grade) with salary of \$2,699 or \$3,158 per year, depending upon whether or not they have dependents In the specialist group the rank is either lieutenant (junior grade), lieutenant, or lieutenant commander, and the salary ranges from \$2,699 to \$4,848 The rank of lieutenant (junior grade) in the navy corresponds with that of first lieutenant in the army, lieutenant with captain, and lieutenant commander with major

The physical requirements of the navy are

rather rigid, even in the matter of height, weight, vision, hearing, and teeth The reason for this is that if an individual becomes physically disabled or if an existing disability is aggravated while on active duty in the navy he is eligible for a liberal pension or retirement pay

Medical officers in the hospital specialists units, when called to active duty, will be assigned to naval hospitals in the United States, to hospitals beyond the continental limits of the United States, or to hospital or ambulance ships and will be used in their specialty

For medical officers in the general service group and in the regular navy, active duty offers a wide variety of experience in many parts of the world and training in many specialties They may be assigned to battleships, cruisers, aircraft carriers, destroyers, or hospital ships They may be detailed for duty at naval hospitals, navy yards, naval training stations, submarine bases, naval air stations, or marine corps bases in the United States or beyond the seas They may spend most of their period of active duty at the Naval Hospital, Brooklyn, or they may serve with the marines in Iceland, Bermuda, Hawaii, or the Philippines They may be detailed to the Naval Air Station at Pensacola, Florida, or to the Submarine Base in Alaska They will have some choice as to where they go and what they do, for the navy permits officers to ask for duty they prefer and assigns them to it if practicable to do so

Junior medical officers of the regular navy and, to a lesser extent, medical officers of the general service group of the reserve, have opportunities for special training both in naval and civilian institutions

Doctors desiring information about commissions in the regular navy or naval reserve may obtain it from the District Medical Officer, Headquarters of the Third Naval District, Federal Office Building, 90 Church Street, New York City, by personal or telephone call or letter The telephone number is REctor 2-9100



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CENTRAL VALLEY, Orange County, N. Y

WHAT IS NEWS?

"News! What is it?" asked a writer many years ago. Then, answering his own question, he declared, "It is the stir of life that marks the difference between a living world and a dead planet. It is the sound of civilization's machinery in motion. It is the speed gauge of progress. It is the background for all thinking, all planning and all knowledge of human affairs. When paper leaves the presses imprinted with the news, it is an inert material no longer but an active force."

Before the advent of printing and paper, exchange of reports was made chiefly by word of mouth. It was principally for this purpose that men gathered at common meeting places, formed societies for the discussion of new discoveries and common interests, and listened eagerly to the words of gossips.

While to some extent we still gather at appointed times to discuss events and new things, for the most part we obtain our information from printed pages.

We may well wonder how dwarfed the progress of medicine might have been without the medical journals

taken so much for granted today. Just as newspapers were developed as the means for transmitting an ever increasing volume of news interesting to all people, so medical journals were developed to serve the profession and keep physicians enlightened on many subjects of common interest.

The medical journal exercises many functions—advisory, educational, fraternal and economic. The doctor of today is living in an age of medical achievement and importance that his predecessors never dreamed possible, largely because through his medical journal he can be the understudy of the best men in his profession and in his specialty.

The issue that he receives today is his reference book tomorrow. Unlike the newspaper, the contents of the medical journal, in spite of being news, lives longer because it is even more than news—it is the pattern for the practice of medicine today, tomorrow and the day after tomorrow.

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Physician in Charge



Hospital News

Splendid New Hospital to Fight Cancer

A PROGRAM described by municipal officials and medical men as "a long step forward" in the treatment and prevention of cancer in New York City took shape in July when the city filed plans for the Florence Nightingale Hospital to be erected on a large plot in West 163rd Street.

The building, to be devoted entirely to the treatment and study of cancer, will be six stories high and cost \$2,218,500. It will house laboratory facilities and equipment far beyond anything heretofore made available by the city for handling cancer cases and for checking incipient cases of the disease.

The site, the old home of the Deaf and Dumb Institute, was donated by Presbyterian Hospital. It is between Riverside Drive and Fort Washington Avenue.

In the adjoining blocks to the north are the buildings of the Columbia Presbyterian Medical Center and in order that the Florence Nightingale Hospital may match these in appearance, the exterior of the upper five floors will be of buff brick. The lower floor and basement will be of native stone to be taken out of the site.

As designed by architects of the Bureau of Architecture of the Department of Public Works, the hospital will be of "modern functional" style, with broad window areas. It will be set diagonally on the sloping lot so that there will be a view of the Hudson River and the landscaped gardens around the building from nearly every room.

Largest Outpatient Department

The main section will have rooms for 315 patients, but most of the ground floor will be used for what was described as "perhaps the largest outpatient department for treatment of cancer in the world." Clinical cases and nonresident patients will be handled there, and elaborate facilities will be provided not only for discovering but for following up early, as well as advanced, cases.

The city will construct the building through the Department of Public Works and then will operate it through the Department of Hospitals. The staff of the new institution will be nominated by the College of Physicians and Surgeons of Columbia University.

Construction of the hospital may be delayed a year or more because of defense needs, Homer R. Seeley, acting commissioner of the Department of Public Works, said.

"There is a delay now of five to six months on steel even if you have a gilt-edge priority," he said. "The contracts are to come before the Board of Estimate in the near future, and after that four to six weeks will be needed to advertise for bids and award contracts to excavate for the foundation. There is insufficient money in this year's budget to complete the building and no provision, of course, for next year's needs yet. But the difficulty of getting steel is the big problem."

Improve Employment Conditions

AT ALL recent conventions there has been one extremely live topic, that of the difficulties present apparent in the hospital employment situation, says *Hospital Management*. Many of our employees are being called to military service; many others are attracted by higher wages being paid in industry, while some just like to change.

For the latter class, there is no apparent remedy. They are natural floaters, and it is doubtful if they are worth retaining. In any event, it is probably impossible to keep them.

Those called to military service must be replaced, and in doing so the answer as suggested is that we select new employees who are beyond the draft age.

Deferment can undoubtedly be secured for some of those who are eligible for the draft, but it is doubtful if it is desirable to seek such deferment except in case of absolute necessity. In this we must be careful to lay aside selfish considerations. We must remember that the nation needs the men and women and that we must get along without them if it is at all possible.

These two classes constitute the smallest part of our turnover, and it is to the great majority that we should devote special attention. Most employees leave hospital employ because industry offers more attractive working conditions. If we are to be successful in competing with industry, it is quite obvious that we must find out what we lack and apply the remedy.

Wages and Hours

First is the wage scale. We have habitually paid our employees a wage below that of industry, giving as our reason that we are charitable institutions offering free care to those who cannot pay for it. As a matter of fact, a great deal of our charity has been given at the expense of our employees, and they have received no credit for their contributions. This practice appears to be headed for the discard.

The second matter to be considered is that of hours of work. The eight-hour day, forty-eight-hour week is generally recognized and should be kept in mind as the desirable objective. Hospitals must be kept open at all times, and this adds to the difficulty of offering hours comparable to industry. But it can be done and it is better that we do it voluntarily than that it be forced on us by unionization. Because of conditions of work load and distribution, it is sometimes impossible to avoid broken shifts, but these are undesirable.

Old-Age Security

Security is the third of the three major factors affecting employment. *Hospital Management* has often called attention to the position of the hospital employee who has given years of faithful service to his institution and faces old age when he can no longer be productive with no provision for that age. Our employees have been excluded

[Continued on page 1888]

A Guide to Select Schools



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Elux Bromaurate (Gold)	1802
Hematonic Plastules (Bovinine)	1890
Hyclonte (Bethlehem)	1804
Maxitate (Strassenburgh)	1807
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Dietary Foods

Biolac (Borden)	2nd Cover
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Pablum (Mead Johnson)	4th Cover
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S-M-A (S M.A.)	3rd Cover
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		Whisky (Johnnie Walker)	1804

[Continued from page 1884]

from the old-age security offered by national legislation, but this is an injustice that will undoubtedly be remedied. We should work to that end, but savings and investment are a better form of old-age security. We believe that there should be an organized employees' savings and investment department in every hospital.

These are only three of the outstanding things that can be done to make employment conditions in the hospital more attractive and help forestall the threatened turnover shortage. We believe that it would be worth the time of every administrator to study conditions in his own hospital and find out how they can be improved. We mean actual study, not just moaning at the difficulties we face. Get to the employee and find out why he is thinking of leaving. This may not prevent the loss of the particular person, but it may give you a pointer that will prevent the loss of others.

Newsy Notes

Because the country's military forces are expected to make a heavy drain on trained nurses during the coming year, the Edward J. Meyer Memorial Hospital in Buffalo is planning to induct the largest class of student nurses in its history this fall, Dr. Walter S. Goodale, superintendent, announces.

The hospital is planning for a new class of 200 students in September, compared with 150 a year ago.

Workmen have been converting the old Kew Gardens Inn at 8002 Kew Gardens Road into a private hospital.

The inn closed January 1, this year, when Dr. M. A. Mason, a Bronx physician, leased the building for 35 years for approximately \$1,250,000 to set up a 240-bed institution.

Construction of the proposed \$70,000 nurses' home addition at the County Hospital in Rome is being opposed on the ground that defense building should be given priority, says the Rome *Sentinel*.

Included with the building are the proposed \$414,000 UFA gymnasium in Utica and construction of physicians' homes at Broadacres Sanatorium.

These last two are opposed by Thayer Burgess, president of the Oneida County Taxpayers' League. Supervisor George C. Wertz, Jr., Utica, is objecting to all three because of probable need of all available mechanics for construction of the Rome Air Corps Depot. The ways and means committee of the Board of Supervisors, it is learned, has assured Wertz the nurses' home addition will not be approved at this time.

The drive for the Eastern Putnam Hospital Fund has been given up on account of the national defense program, and all contributions are being returned.

Improvements

Plans for construction of a new municipal hospital for Niagara Falls have been revived by the City Council, and arrangements are being made to apply for a federal grant to defray part of the cost of the project, it is announced. City Manager W. D. Robbins, who said that the application will be sent in as soon as plans for the proposed new building are completed and a site is selected.

The application for a federal grant will be made to the Federal Works Agency of the Public Works Administration. Present plans call for a new fireproof brick building with 100 rooms, more, but details have not yet been prepared, Mr. Robbins said.

Another view is that expansion of present facilities at the Memorial Hospital is the most expedient manner in which to relieve the increasingly apparent need for more hospitalization space in Niagara Falls, P. Godfrey Savage, superintendent at Memorial states.

It would be inadvisable, Mr. Savage says, to erect a new hospital in any outlying section because of the added cost of operation such a plan would entail.

If the facilities at the Memorial Hospital were expanded through the erection of needed patient space on existing property there, the new structure could be heated by the present heating plant, and it could be operated under the same direction, he pointed out.

Mr. Savage directed attention to the Strong Memorial Hospital in Rochester, where this same procedure was followed more than fifteen years ago.

The Westfield Hospital Association is raising funds to purchase the Skinner estate and remodel it for a 26-bed community hospital.

Construction work on the long anticipated "Roslyn Park Medical Center," will be started early in September, Hubert Tannenbaum, architect of the hospital, announces.

The 50-bed institution will be built on the 6-acre park area of the former Benjamin Rosenbaum estate opposite the Roslyn railroad station.

The new building of four stories will include glass block-walled surgery and delivery rooms, private and semiprivate rooms, x-ray and therapy rooms, laboratory, diet kitchens, two sun decks, and roof gardens overlooking the Hempstead Harbor.

With the first of the new state hospital buildings at Deer Park nearly 75 per cent completed, contractors now are also busily engaged on three other structures, and work has started on relocating Commack Road, in order to keep traffic off the hospital grounds. Contracts totaling

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Editorial

Medical Education and National Defense

The forty-first annual presentation of educational data by the Council on Medical Education and Hospitals of the A.M.A., as reported in the *J.A.M.A.* for August 30, 1941, is encouraging with respect to the foresight shown by most of the medical schools during the last year in preparing to meet increased demands for medical personnel.

The report points out that formal action by the Council on the question of increasing the enrollment of medical students or accelerating the output of graduates of medical schools has not been taken because of the absence of any definite information from the War Department as to the necessity for such moves. However, forty-four medical schools have increased the enrollment of the 1941 entering class by a total of 329 students. Eleven schools have made it possible for students to anticipate, during the current summer, a part of the required work of the fourth year and in three of these schools the program is required. Classes will be graduated in February or March by eight schools. Three schools will allow seniors to finish their work two months earlier and begin their internship or other work at that time, but they will graduate with the regular class in June.

"The medical curriculum has not thus far been curtailed," the report says, "although the total time involved has been shortened by cutting down vacations. Additional courses in military

medicine are being offered. The medical schools, apparently, are able to proceed without extensive revision of the curriculum and without shortening the period of residence. An accelerated program is not possible in many institutions for various reasons, including the fact that their teaching forces have been reduced for military reasons. Others would consider such a program if completion of the course could be integrated with hospital internships. The financial aspect is an important consideration both for students and for schools.

"It would appear that every effort is being made by medical educators to cooperate in the national emergency while at the same time endeavoring to insure that the education of physicians is continued at the present level and without interruption.

"It should not be necessary to argue that a continuing and undiminished supply of well-trained physicians is absolutely essential to the welfare of the nation. We cannot speed up that training beyond a certain point without lowering educational standards and degrading the quality of medical service. The present crisis demands, in fact, better qualified physicians if we are to face the future with reasonable confidence. Those who represent the medical schools are making every effort to preserve their institutions and to maintain, unimpaired, their priceless contribution to the health and welfare of the Nation."

[Continued from page 1886]

close to \$7,000,000 are now in the works, and between 400 and 600 men are employed. When completed the hospital will accommodate 10,000 patients, says the *Babylon Eagle*.

The construction now under way is only the beginning. At the State Department of Public Works, Division of Engineering, office on the grounds, it was said that close to seventy buildings will be erected before the hospital unit is complete. These buildings will include—besides the reception centers, infirmary, and permanent patients' structures—shops, warehouses, power-houses, and doctors' and staff residences.

In appearance it will be similar to the nearby Pilgrim State Hospital which also accommodates about 10,000 patients, and which has ninety buildings scattered over a large tract of land.

An addition to the De Graff Memorial Hospital in North Tonawanda, to provide 50 more beds, is contemplated, and it is hoped a federal grant of \$300,000 can be secured toward its construction.

The Shepard Relief Association Hospital at Montour Falls will construct a \$20,000 addition.

Federal authorities intend to start providing hospitalization facilities for war veterans at Saratoga Springs with a single unit, rather than construction of an extensive plant, according to a letter received by Congressman E Harold Cluett of the Twenty-ninth District from General Frank Hines, chief of the Administration of Veterans' Affairs.

The Cortland County Hospital has added two new maternity delivery rooms at a cost of over \$7,000.

The Staten Island Hospital has opened a new admitting ward for children under 12 to avoid infection, at a cost of \$3,000. During a twenty-four-hour stay in the admitting ward, the children will be under observation for contagion and, in case of infection, will be segregated.

A general hospital for Schoharie County is urged by Dr R D Champlin, district health officer.

CANCER EDUCATION HELD INADEQUATE

Dr James Ewing, consulting pathologist at Memorial Hospital for the Treatment of Cancer and Allied Diseases and dean of American pathologists, criticized on March 29 the present status of cancer education in American medical schools and urged its improvement. He made his statements in an address at the annual meeting of the board of directors of the American Society for the Control of Cancer in the Harvard Club in New York City.

According to Dr Ewing, a recent survey made by Dr Samuel Binkley, assistant managing director of the society, "reveals that the medical schools are generally lacking in well-organized plans for such education of students."

Conceding that cancer education in the last ten years has shown "really remarkable advances which have developed along sound lines and have brought permanent results of great value to the cancer patient," Dr Ewing nevertheless emphasized the following summary of Dr Binkley's survey.

"Of sixty-eight questionnaires sent to Class A medical schools there were thirty-nine replies. In all these schools the teaching of cancer, aside from pathology, was scattered through the years in the separate departments. Thirty-four schools held cancer diagnostic and treatment clinics. Attendance at these clinics was elective in 43 per cent, required, 38 per cent, and students were unable to attend because of no clinic in 18 per cent.

"Two schools had a chair of oncology. A distinct coordinated course of clinical lectures and demonstrations on cancer, exclusive of lectures in pathology, radiology, and surgery, was given in eleven schools. Twenty-eight schools felt that their students were qualified to diagnose cancer in its early stages, while eleven schools declined to make this claim. The subject of cancer should receive consideration in the State Board examinations in the opinion of fifteen schools, while seven thought not.

"A review of this report seems to justify the statement that the teaching of cancer to undergraduate students takes its chances with the interest or neglect of the heads of departments. This state of affairs is not inconsistent with a high standard of work in individual cases, but it offers no assurance that the subject is adequately covered in its essential phases."

Dr Ewing urged that one-third of a course of 480 hours under the Department of Pathology in each medical school be devoted to instruction in the principles of neoplastic (cancer) diseases. The teaching of cancer diagnosis and treatment, he added, is the responsibility of departments of surgery and should include demonstrations of technical surgery and also of "the results of treatment pursued to the return clinic or the autopsy." He said that radiology "still remains the step-child in the university medical school" and asked surgeons to see that it is kept abreast of the times.

One admires the delicacy of feeling of the Minister who, when one Representative called the measure "coercion," expressed regret that the word was used. Asked by another whether the bill was intended to punish the doctors for not agreeing to free medical care, Mr Nordmeyer said he regarded it not as a penalty but as a concession to the doctors. He was unable, he said, to imagine any doctor refusing when someone asked what

would happen to a physician if he refused to be dragooned.

It is evident from the trend of events in New Zealand that an end is sought to all private medical service. The government can apparently muster sufficient votes to pass the bill. Short of a general strike which public opinion would not tolerate "the doctors appear," says the *Times*, "to have no weapon to oppose the measure." And that seems to be that.

Emergency Civilian Medical Service

Emergency Medical Service for Civilian Defense is now in the stage of active organization. In New York City Dr Edward M. Bernecker, general superintendent of city hospitals, has been appointed as its head and the medical and public health section of the New York City Health Preparedness Committee of the State Defense Council will serve as an advisory board.

Mayor La Guardia has wisely appointed the chairmen of the medical preparedness committees of the county medical societies to act as Chiefs of the Emergency Medical Service in their respective boroughs. They are Dr Condict W. Cutler, Jr., New York, Dr Edward R. Cunniffe, Bronx, Dr Thomas A. McGoldrick, Kings, Dr Harry P. Mencken, Queens, and Dr Herbert A. Cochrane, Richmond.

The action of the Mayor in appointing Dr Bernecker and the five borough leaders followed the recommendation laid down in the *Medical Division Bulletin No. 1*, of the United States Office of Civilian Defense of which Mayor La Guardia is the director and Dr George Baehr, the chief medical officer.

Paragraph one of the *Bulletin* deals with the appointment of the local chief of Emergency Medical Service, and in this state he will be designated by the Local Defense Councils.

Paragraph two of the *Bulletin* refers to a Local Medical Advisory Council on Civilian Defense. In New York State we have already set up County Health

Preparedness Committees to serve the counties and the cities therein. There is thus no need for a new committee.

At the present time, County Defense Councils have in their membership the chairmen of the County Health Preparedness Committees. It is suggested that each City Defense Council include in its membership, if it has not already done so, a member of the County Health Preparedness Committee for better liaison between the county committee and the City Defense Councils. The County Health Preparedness Committee can, and will, expedite the coordination of the medical facilities from which the civilian defense organization in the state is to be developed.

It is suggested by Dr Baehr that the chairmen of the Medical Preparedness Committees of the various county medical societies be appointed as Chiefs of the Emergency Medical Service in their localities. Chosen for their executive ability and standing in their individual county society these men are thoroughly familiar with the data so far accumulated by the committees which have been functioning for well over a year.

It is important that the efficiency and quality of our emergency medical service should be initiated and maintained at the highest possible level. The first and most obvious step in this direction is the appointment of the best qualified man as chief of that service. The county medical societies are in the best position to judge of the qualifications of such a

In July¹ we said "It is the foreign policy of the government which is now shaping, and will continue to alter further, the future of medicine" Nowhere is this more evident than in the field of medical education, as the above quoted report indicates. Plans for national defense must be predicated upon what we shall have to defend, where we must defend it and how. Any such plans must to a certain extent await the event. In the meantime, certain minimum demands must be met based upon authorized expansion of the armed forces, upon calculable, necessary expansion of industry and predicable civilian needs.

A broad view of what has been happening in the Nation seems to show a tendency to place domestic health and medical affairs under the expanding jurisdiction of the Social Security Administration in an attempt to coordinate them with plans, not yet fully disclosed, if indeed they have been condensed in tangible form from the nebular political mists which swirl and eddy about the Nation's capital. Forecasts in almost every kind of material thought to be necessary—excepting only money—have seemed to fall far short of eventually

proved necessity. One thing only seems clear. All proposals whether related to the probable demands of foreign policy or the exigencies of domestic affairs must be passed through the fine comb of the politico-social theorists at Washington. Nothing must interfere with the preservation of "social gains" no matter how closely related to reality it may be.

Since nobody apparently knows where our foreign policy will take us, or to what extent our "social gains" will anchor us, and since between the two a good deal of activity of one sort or another is going on, the picture in all its mystic beauty suggests a swarm of bees in an accordion. How, under such circumstances, medical educators can "preserve their institutions, and maintain, unimpaired, their priceless contribution to the health and welfare of the Nation," as well as to exercise foresight which is not merely plain guesswork, is beyond us. That they have successfully accomplished a great deal in the matter of reorganization, financing, and the maintenance of those standards that will produce a continuous supply of well-trained physicians in the face of unbelievable pressure and muddling, is a tribute to the soundness and adaptability of the structure of medical education in the United States.

That Bill Is in Again

Under the headline "New Zealand Gets Free Doctor Plan," the New York *Times* of September 8, 1941, describes a bill now before the House of Representatives by which national free medical care estimated to cost \$5,000,000 a year would be visited upon the people of New Zealand. Medical fees would be paid from the social security fund at the rate of \$1.00 for an office visit, \$1.25 for a house call, and \$0.25 a mile for travel over twenty miles. The government introduced the bill.

We have commented on the previous bill¹ which went into effect March 1,

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Health Commissioner Nordmeyer stated before the Health Committee of the House, it is reported, that "the government was fixing one fee for all services though he said the government *presumed*² these would be the best the doctor was able to render."

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SOLDIER'S HEART

LOUIS FAUGERES BISHOP, JR., M.D., New York City

THE title of this address was deliberately chosen to challenge attention to the fact that there should be no such thing as "soldier's heart" in this war. Why? Because we have accumulated over the years a knowledge of this condition, now called neurocirculatory asthenia, which should enable us to prevent its occurrence in the Army. All of us now realize what the heart and circulation of the soldier may be called upon to withstand. In these days the word "soldier" includes the aviator as well, who is called upon to endure the greatest of stress and strain. Obviously, the new factors of speed and acceleration and altitude will produce profound effects upon the circulation.

The solution to the problem of "soldier's heart" lies in prevention. And where does prevention begin in America? It begins with the Selective Service examination of the draftee. It should continue through the Induction Service. And it should *not* end when the recruit or trainee arrives in camp.

If we hope to eliminate heart disease in the soldier and take care of his heart, the circulation of a boy in the draft must not be superficially examined. Therefore, the first requisite for the prevention of potential soldier's heart is to have experienced medical examiners, coupled with psychiatric study.

But we have this advantage. We tackle the job of examining the heart and circulation of the draftees with greater accuracy by reason of the advance in knowledge of heart disease since the last World War. We *should* have more skilled ability to evaluate the soldier's heart than in 1918. We in America can *will* to avoid many of the errors of the last World War. What is the use of our progress in knowledge of heart disease if we cannot apply it to the draftee?

Surely the first examination of the draftee by the local board examining physician and his medical advisory board and, the second, the physical check-up by the board of specialists at the army induction centers should eliminate the unfit boy with an organically defective heart. And I believe it will.

But that elusive malady, "soldier's heart," is another matter. It is not an easy diagnosis to make rapidly. And *time* is a factor in the draft.

What is soldier's heart? "Called so far in this war 'neurocirculatory asthenia,' the name is purely descriptive of the major symptoms that are referable to the nervous and circulatory system and associated with an increased susceptibility to fatigue."

Soldier's heart has had numerous names from the time of the Civil War to any new label we may bestow on it in 1941. The most interesting term may contain a kernel of truth as to the nature of the disease—"D.A.H.," or "disordered heart action," popularly interpreted as "desperate affection for home." Apropos is a conversation I had with a trainee visiting New York City at Easter. I asked him what the soldiers at his camp talk about. He replied, "food and girls." There you have it—longing for the usual way of life—home! It is inherent in the normal, as well as the neurotic, recruit. Prevention must be on the alert for the neurosis that dogs the mind of the soldier away from his usual life and exposed to unusual mental and physical stress which may in turn affect his heart. Call it what you will, cardiac neurosis, effort syndrome, neurocirculatory asthenia, irritable heart, or anxiety neurosis, it is apparent that "soldier's heart" is a real disease, with far-reaching effects and as worthy of prevention as cancer!

The classic description of this subject, neurocirculatory asthenia, is contained in the article by J. M. Da Costa, one of the physicians to the Pennsylvania Hospital, in "Irritable Heart. A Clinical Study of a Form of Functional Cardiac Disorder and Its Consequences."¹ This study was published in the January, 1871, issue of the *American Journal of the Medical Sciences*. A study of this article, which is really a great medical classic, leaves no doubt in one's mind that Da Costa was writing about the condition now called neurocirculatory asthenia. In his original description he undoubtedly included some other forms of heart disease, but he had much the same experience with his cases that was again to happen in the World War of 1918 and that, with a fair degree of prediction, will happen again in this war. Evidently in every gen-

Associate Visiting Physician, Bellevue Hospital.
Chairman's address read before the Section on Medicine at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 30, 1941.

physician in the opinion of Dr Baehr and in this opinion the State Health Preparedness Commission concurs

The various counties are urged to act on this recommendation as soon as possible

Shortages

We have written before¹ that "major problems arising from altered economic concepts and practices are still but partly solved, and seemingly will be still further delayed in their solution, if not thrown out altogether, by the recent abrupt change that has precipitated the Nation into a war economy. One of the problems still very largely unsolved and related intimately to the domestic policy of government is that of medical care for welfare cases."

For a time, the increasing expansion of industry has reduced the relief rolls and has rendered less acute the deficiencies of the welfare program relative to the provision of good medical service. This does not mean that the problem has been solved. The lessened pressure has merely rendered existing conditions seemingly better.

Now there seems to be in prospect a new wave of industrial dislocations,

strikes, and unemployment. This will be occasioned by the shortages of materials in nondefense industries. It will impose new burdens on welfare medical service in the next few months. In many areas numerous physicians have been withdrawn for military service and more will be called shortly. Nursing personnel is already deficient.

We foresee many difficulties ahead unless some prompt forethought is given to a more effective arrangement than now exists for rendering good medical service to welfare patients. A shortage in civilian physician personnel will result inevitably in more cases being hospitalized. Hospital facilities are even now overtaxed in many areas of the state, not only in the matter of available beds but because of reduction in medical staff personnel. The prospect for the ensuing months seems to point to overcrowding, overwork, and a good deal of muddling around. A little planning would do no harm in the interest of the patient.

¹ The Future of Medicine, New York State J Med. 41 No. 14 1429 (July 15) 1941

Undermining Medical Practice

If it were not so serious, one could derive a certain amount of amusement from the clamor that periodically arises when some branch of medicine is encroached upon by nonprofessionals and is tolerated and even encouraged by the law. In the years gone by ophthalmology has given birth to the optometrist and optician. General practice has sired the physiotherapist. Anesthetists are responsible for the large number of nurses who have intruded into the specialty. There has even been a movement to qualify laymen as "audiometrists" who would be eligible to test hearing with an audiometer.

We, as a whole, have no one but ourselves to blame for this situation. It is a result of carelessness, but more so of indolence in the performance of the time-consuming details attendant upon every branch of medicine.

Others have been quick to see the lucrative possibilities of these stepchildren of medicine. They have had our unconscious support in the development of these fields during the past decade and a half, when the medical profession was intense in the encouragement of specialization.

When the world depression began to affect the income of physicians, it began to dawn upon us that we had relinquished a considerable source of revenue which rightly belonged to the doctor. Rectification of the situation was impossible. There are still fields in which there is a tendency to relegate medical functions to laymen. In radiology, dermatology, and orthopedics—to name a few—one sees this inclination all the time. If we are not to be further encroached upon, it is up to us, and us alone, to stop it.

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The various counties are urged to act on this recommendation as soon as possible

Shortages

We have written before¹ that "major problems arising from altered economic concepts and practices are still but partly solved, and seemingly will be still further delayed in their solution, if not thrown out altogether, by the recent abrupt change that has precipitated the Nation into a war economy. One of the problems still very largely unsolved and related intimately to the domestic policy of government is that of medical care for welfare cases."

For a time, the increasing expansion of industry has reduced the relief rolls and has rendered less acute the deficiencies of the welfare program relative to the provision of good medical service. This does not mean that the problem has been solved. The lessened pressure has merely rendered existing conditions seemingly better.

Now there seems to be in prospect a new wave of industrial dislocations,

strikes, and unemployment. This will be occasioned by the shortages of materials in nondefense industries. It will impose new burdens on welfare medical service in the next few months. In many areas numerous physicians have been withdrawn for military service and more will be called shortly. Nursing personnel is already deficient.

We foresee many difficulties ahead unless some prompt forethought is given to a more effective arrangement than now exists for rendering good medical service to welfare patients. A shortage in civilian physician personnel will result inevitably in more cases being hospitalized. Hospital facilities are even now overtaxed in many areas of the state, not only in the matter of available beds but because of reduction in medical staff personnel. The prospect for the ensuing months seems to point to overcrowding, overwork, and a good deal of muddling around. A little planning would do no harm in the interest of the patient.

¹ The Future of Medicine, New York State J Med 41 No 14, 1429 (July 15) 1941

Undermining Medical Practice

If it were not so serious, one could derive a certain amount of amusement from the clamor that periodically arises when some branch of medicine is encroached upon by nonprofessionals and is tolerated and even encouraged by the law. In the years gone by ophthalmology has given birth to the optometrist and optician. General practice has sired the physiotherapist. Anesthetists are responsible for the large number of nurses who have intruded into the specialty. There has even been a movement to qualify laymen as "audiometrists" who would be eligible to test hearing with an audiometer.

We, as a whole, have no one but ourselves to blame for this situation. It is a result of carelessness, but more so of indolence in the performance of the time-consuming details attendant upon every branch of medicine.

Others have been quick to see the lucrative possibilities of these stepchildren of medicine. They have had our unconscious support in the development of these fields during the past decade and a half, when the medical profession was intense in the encouragement of specialization.

When the world depression began to affect the income of physicians, it began to dawn upon us that we had relinquished a considerable source of revenue which rightly belonged to the doctor. Rectification of the situation was impossible. There are still fields in which there is a tendency to relegate medical functions to laymen. In radiology, dermatology, and orthopedics—to name a few—one sees this inclination all the time. If we are not to be further encroached upon, it is up to us, and us alone, to stop it.

SOLDIER'S HEART

LOUIS FAUGERES BISHOP, JR., M D , New York City

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The solution to the problem of "soldier's heart" lies in prevention. And where does prevention begin in America? It begins with the Selective Service examination of the draftee. It should continue through the Induction Service. And it should *not* end when the recruit or trainee arrives in camp.

If we hope to eliminate heart disease in the soldier and take care of his heart, the circulation of a boy in the draft must not be superficially examined. Therefore, the first requisite for the prevention of potential soldier's heart is to have experienced medical examiners, coupled with psychiatric study.

But we have this advantage. We tackle the job of examining the heart and circulation of the draftees with greater accuracy by reason of the advance in knowledge of heart disease since the last World War. We *should* have more skilled ability to evaluate the soldier's heart than in 1918. We in America can *will* to avoid many of the errors of the last World War. What is the use of our progress in knowledge of heart disease if we cannot apply it to the draftee?

Surely the first examination of the draftee by the local board examining physician and his medical advisory board and, the second, the physical check-up by the board of specialists at the army induction centers should eliminate the unfit boy with an organically defective heart. And I believe it will.

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I find that it is reasonably easy to advise rejection when there is a clear-cut history of rheumatism and marked evidence of valvular defects, a well-defined example of congenital disease, or an occasional definite syphilitic heart. But it is hard to determine in the borderline problems whether a draftee will stand the wear and tear of training.

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today must also include the aviator's heart as well. For example, the most specialized requirement of the circulation of the aviation soldier is his cerebral circulation. It is interesting to note what special requirements must be met in order to enable a boy to be accepted in the aviation service from the cardiovascular standpoint. A survey of Armstrong's book, *The Principles and Practice of Aviation Medicine*, discloses extremely interesting data. In considering the underlying principles, he states "In aviation the cardiovascular system is important principally in relation to the maintenance of adequate tissue metabolism in order that the different organs of the body may operate continuously at a high level of efficiency."

As mentioned previously, of special importance is the maintenance of an adequate cerebral circulation for the support of consciousness. In other words, it is important that the heart of a soldier-aviator be adequate to keep the circulation to the brain intact. The conditions under which the aviator's heart operates are somewhat different from those of the soldier on the ground. For example, in flying, there is seldom, if ever, any physical activity sufficient to cause undue stress on the heart and blood vessels. The effect of altitude is not much different from that observed in mild exercise. It is particularly important that no possibility of a neurocirculatory asthenic condition is overlooked in the aviation soldier's heart. The acute psychic and emotional shock met with in wartime aviation may even lead to loss of consciousness in the unstable individual.

To measure up to the ideal, all soldiers and aviators should have a heart and circulation such as described by Schneider.⁷ He found that those factors such as make up what we term "athletic condition"—that is, a strong heart muscle, a highly efficient coronary circulation, and a good peripheral vasomotor control—all contributed markedly to increase altitude tolerance.

After twenty years certainly some of the mistakes of the last War in the appraisal of the circulation of soldiers will be eliminated. At that time large numbers of perfectly healthy individuals were rejected because of the presence of some signs whose significance the doctors were never taught to discount. It would seem that physiologic variations from the normal will not present to modern doctors such problems as those in the past.

I have never looked upon the diagnosis of heart disease as an easy matter. All of us

know that the symptoms of organic heart disease can be mimicked by nervous disorders, that the extracardiac causes of pain are manifold, that shortness of breath may come from many other causes than heart disease, and that various so-called circulatory symptoms—such as dizziness, syncope, pallor, or flushing—may not mean heart disease at all.

All of us know as well the difficulty of evaluating minor variations of physical signs from normal—that a diffuse apical beat does not mean heart disease, that percussion is not always reliable, that the position of the apex may vary, that heart sounds are sometimes not easy to appraise, that it is not simple to distinguish functional from organic murmurs. So appraisal of the normal heart should lead us all to take stock of ourselves—we should re-examine *ourselves* to see how much we know about some of these variations to avoid a few of the mistakes that were committed in the last World War. I might here recommend a useful pamphlet that can be obtained from the American Heart Association,⁸ called "Examination of the Heart."

Last year before this Section there was given a review⁹ of some of the recent advances in the study of the heart which included interesting methods of visualizing the chambers of the heart and great vessels, methods of recording the physiologic movement of the beating heart on a single film, and the new sensitive microphones and recording instruments for timing and differentiating murmurs. Also, there was a new idea in electrocardiography, such as the development of the lag-screen belt. By this device large numbers of persons, such as recruits, may be examined—such a method is useful when permanent records are necessary *only* if abnormalities are noted. There was also reported a new method of recording cardiac output by a mechanical device and methods of recording graphic registration of breathing—these (although used primarily for the study of pulmonary disease) may be important in differentiating whether dyspnea is of cardiac origin or is due to respiratory neurosis or to malingerer. Some of these newer methods of diagnosis are already teaching us more about neurocirculatory asthenia, for example, the method of ballistocardiography, the method of recording cardiac output, has shown that the cardiac output in neurocirculatory asthenia is reduced.

While it has been generally accepted that physicians know how to estimate the physical fitness of individuals, experience has shown that this is not easily done.¹⁰ There is no

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pressure, at rest, above 150 systolic and 90 diastolic¹²

In our unit (Local Draft Board 41, New York City) for examining recruits, we have had some interesting experiences with the measurement of blood pressure. We have certainly verified to our own satisfaction what is so well known and often stated that it is a well-established fact that the systolic blood pressure is variable and that it reacts to various forms of external and internal stimulation. It has been stated truly that the systolic blood pressure is more easily influenced by excitement or exertion in the draftee with neurocirculatory asthenia than in a normal person¹³

The determination of blood pressure is important from another standpoint if we are to agree with Hines¹⁴ that a transient elevation of systolic and diastolic blood pressure above a certain level should be regarded as evidence of a hypertensive regulating mechanism for blood pressure and that this hyperactivity is a precursor of sustained hypertension. There is no doubt that the examination of a recruit or trainee is in a sense a psychic pressor test. While it is probably not so consistent a standard test as the well-known Hines cold-pressor test, yet it may have a good deal of significance. It would only be by careful follow-up study and more detailed records of these examinations in recruits that we could work out any further important statistical data on this subject. The work of this draft has been so voluminous and has had to be done in such a short time that it has not been generally possible to set up any definite program of research along such lines. It is possible that during the coming draft important studies of this nature can be made.

From our study of this group of men it becomes clear that the range of normal blood pressure has not been definitely established. I think the important point to remember is that even transient elevations of diastolic and systolic blood pressure into the upper ranges of the so-called normal may be prognostic of probable subsequent hypertension.

We have made an interesting observation that just as the slow pulse seems to be quite unusual in examining recruits, hypotension also in our experience appears equally unusual.

Certainly a number of examples of neurocirculatory asthenia will be spotted by the Selective Service examination, others, by Induction Centers. But a comprehensive study of this problem will have to come after

soldiers have undergone training. Exactly by what methods of study, whether it be response to graded exercises or whether it be further refinement of functional tests, it is hard to say at this time.

All of these newer methods that have developed during the last years should help us in cases of differential or borderline diagnosis of the normal heart. In the light of our experience with past wars and in the knowledge we have gained of heart disease in civil life, together with what we have learned of newer examining methods and the aids of psychiatrists, we are still not going to eliminate entirely the question of neurocirculatory asthenia, because obviously the morale of the army is an important factor in the prevention of this disease. It is with an appreciation of the intangible nature of the morale factor with which I conclude this paper on the soldier's heart.

Although we hope that soldier's heart of other wars will not be a problem in our American army, it would seem from a study of this subject that if we are to prevent the development of this condition during and after the training period is ended the morale factor is important. Prevention of soldier's heart implies not only the weeding out of the unfit boys for the sake of themselves, their comrades, and the army, but prevention must be actively pursued in building up the morale of the boys in camp.

The medical profession will play no small part in this work. For example, just the giving of friendly instruction and adjustment to army routine reduced fainting from fear of inoculation from 40 to 2 or 3 per hundred¹⁵.

The most important points in the building of a morale have been only recently beautifully expressed in the DeForest speech by a young Yale undergraduate,¹⁶ which I should like to repeat. Like so many boys of our times, he was told by one of his elderly friends that he was glad that he would soon be out of it all, but that our young Yale friend would have to live through it all. This was the substance of the boy's reply.

"Through the threefold self-discipline of courage, faith, and understanding, the scales will fall from our eyes, and we shall see ahead to a future worth living in. Out of the Night itself we shall draw the inspiration to conquer by the power of the light that is in the mind of man. And beyond the sight of battling nation and a scarred earth, we shall catch a dreaming glimpse of peace and of new things in a new world."

clinical test that will accurately measure the functional capacity of a given heart. There are numerous useful tests, but no one test fits all possibilities. It is true that today we have many more mechanical devices to estimate cardiac circulatory function, but often they are too elaborate or they require too much apparatus and training in their use. Moreover they do not furnish much more than objective observations. For example, the recently advocated epinephrine test by King¹¹ for the determination of functional reaction to aid us in weeding out neurocirculatory conditions needs many more observations to guarantee its usefulness. But we must continue trying to get an accurate gage of the functional capacity of the soldier by every means of investigation and observation.

Functional capacity must be tested by exercises of longer or shorter duration. There is no doubt that in the final analysis this will be the only method of sorting out examples of neurocirculatory asthenia. I would recommend that a careful study of this problem of functional capacity and endurance be introduced when possible where men have started to undergo training.

In examining the heart and circulation of the draftee, I am sure I am only stating the usual obstacles that come up in examining large numbers of persons in a short time. But by calling attention to them, a few of these difficulties may be overcome.

A few of the impressions that we have gained in Local Draft Board 41 (New York City) are the following. We have found it important to examine the circulation of a draftee in an environment where there is as little noise as possible, otherwise the interpretation of the heart sounds is impossible. This is no easy matter when one is dealing with a large number of adults undergoing an examination for the army.

We have also found it imperative to have the draftee rest quietly for a few minutes rather than to *rush* into the examination, thus sometimes happens when the boys are going from doctor to doctor in the Selective Service units that are set up.

I would like to mention a few impressions of some of the simple questions that arise in the course of examinations of the circulation. The first is that of the determination of the pulse rate and rhythm. Under the physical standards a pulse rate of 100 or over, that is persistent, is abnormal. In general, this is a fairly reliable criterion. In examining the draftees it is hard to know in some of the ex-

amples of rapid pulse which we encounter whether the increased rate will be persistent or not or how easily it will change under varying conditions. In general, it is my opinion that the boy with a labile pulse should not necessarily be rejected unless this is accompanied by other objective evidences of neurocirculatory impairment.

We have noticed that one of the common conditions that keeps the pulse rate up persistently, besides the more obvious possibility of an infection, is the effect of alcohol taken during the day of examination. We have found generally that alcohol speeds up the pulse, raises the blood pressure, and in general makes any evaluation of physical signs difficult. It is always a possibility that the draftee who is sensitive to alcohol or other drugs, such as tobacco, may be a potential candidate to develop neurocirculatory asthenia. This is a controversial question.

We have noted that extremely slow pulses are exceedingly rare and in our experience have not constituted any diagnostic problem as yet.

In general, it would seem that arrhythmias are also infrequent. In examining a large number of draftees, I have noted premature contractions in relatively few.

Sinus arrhythmia, a common finding in young adults, is frequent, but marked sinus arrhythmia is seldom noted.

It is not easy to determine rapidly the size of the heart in examining a large number of recruits, particularly since in Selective Service it must be done by physical signs alone. It has been noted that the boy with neurocirculatory asthenia usually has a small heart.

With regard to heart sounds and cardiac murmurs, the time-old question of whether a given murmur is functional or organic is still with us. One of the main handicaps in our unit is that we rarely have time to listen carefully enough in all positions and, after effort, to localize and clearly define a given murmur. A huge mass of work for the draft boards has grown up overnight.

The Selective Service booklet states that a persistent blood pressure, at rest, above 150 systolic or above 90 diastolic is cause for rejection.¹² Out of a total of 17,540 men examined between the ages of 21 and 35, 487 (or approximately 11 per cent) have been rejected in New York State for all complaints having to do with the heart, blood vessels, and circulation. Approximately 3 per cent of the 487 rejections have been due to a persistent blood

pressure, at rest, above 150 systolic and 90 diastolic.¹²

In our unit (Local Draft Board 41, New York City) for examining recruits, we have had some interesting experiences with the measurement of blood pressure. We have certainly verified to our own satisfaction what is so well known and often stated that it is a well-established fact that the systolic blood pressure is variable and that it reacts to various forms of external and internal stimulation. It has been stated truly that the systolic blood pressure is more easily influenced by excitement or exertion in the draftee with neurocirculatory asthenia than in a normal person.¹³

The determination of blood pressure is important from another standpoint if we are to agree with Hines¹⁴ that a transient elevation of systolic and diastolic blood pressure above a certain level should be regarded as evidence of a hypertensive regulating mechanism for blood pressure and that this hyperactivity is a precursor of sustained hypertension. There is no doubt that the examination of a recruit or trainee is in a sense a psychic pressor test. While it is probably not so consistent a standard test as the well-known Hines cold-pressor test, yet it may have a good deal of significance. It would only be by careful follow-up study and more detailed records of these examinations in recruits that we could work out any further important statistical data on this subject. The work of this draft has been so voluminous and has had to be done in such a short time that it has not been generally possible to set up any definite program of research along such lines. It is possible that during the coming draft important studies of this nature can be made.

From our study of this group of men it becomes clear that the range of normal blood pressure has not been definitely established. I think the important point to remember is that even transient elevations of diastolic and systolic blood pressure into the upper ranges of the so-called normal may be prognostic of probable subsequent hypertension.

We have made an interesting observation that just as the slow pulse seems to be quite unusual in examining recruits, hypotension also in our experience appears equally unusual.

Certainly a number of examples of neurocirculatory asthenia will be spotted by the Selective Service examination, others, by Induction Centers. But a comprehensive study of this problem will have to come after

soldiers have undergone training. Exactly by what methods of study, whether it be response to graded exercises or whether it be further refinement of functional tests, it is hard to say at this time.

All of these newer methods that have developed during the last years should help us in cases of differential or borderline diagnosis of the normal heart. In the light of our experience with past wars and in the knowledge we have gained of heart disease in civil life, together with what we have learned of newer examining methods and the aids of psychiatrists, we are still not going to eliminate entirely the question of neurocirculatory asthenia, because obviously the morale of the army is an important factor in the prevention of this disease. It is with an appreciation of the intangible nature of the morale factor with which I conclude this paper on the soldier's heart.

Although we hope that soldier's heart of other wars will not be a problem in our American army, it would seem from a study of this subject that if we are to prevent the development of this condition during and after the training period is ended the morale factor is important. Prevention of soldier's heart implies not only the weeding out of the unfit boys for the sake of themselves, their comrades, and the army, but prevention must be actively pursued in building up the morale of the boys in camp.

The medical profession will play no small part in this work. For example, just the giving of friendly instruction and adjustment to army routine reduced fainting from fear of inoculation from 40 to 2 or 3 per hundred.¹⁵

The most important points in the building of a morale have been only recently beautifully expressed in the DeForest speech by a young Yale undergraduate,¹⁶ which I should like to repeat. Like so many boys of our times, he was told by one of his elderly friends that he was glad that he would soon be out of it all, but that our young Yale friend would have to live through it all. This was the substance of the boy's reply.

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Discussion

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1 The clinical concept variously called the "soldier's heart," disordered heart action (English), and neurocirculatory asthenia is not a single simple disorder. It is a complex compound of a series of related symptoms occurring in a variety of ways and arising from a variety of related causes. The disorder has its center in the autonomic nervous system. On one side of this center we have the structure of the heart, on the other, the structure of the mind. While this is not an organic disease of the heart (because the cardiac output can be quite "normal"), yet it may coexist with organic cardiac conditions with any other illness of the body. On the other side of the autonomic nervous system is the psyche and the emotional field with its various and diverse manifestations. Neurocirculatory asthenia, therefore, has three related and variable departments: (1) the structure of the heart, (2) the autonomic nervous system, and (3) the psyche.

2 While the heart itself is not characteristically diseased, yet the heart is usually structurally, functionally, and typically inadequate. It is commonly a poor heart—neglected, undeveloped, and untrained. This fact is commonly overlooked in discussions of neurocirculatory asthenia of the soldier's heart. Therefore, I wish to em-

phasize it. I should like to suggest the term "cardiac inferiority." More than half of the cases of soldier's heart (Lewis) come from the white collar class, neither physically fit nor physically trained for the strains of a rugged civilian life or the rugged life of a soldier. This carries two lessons. First, we as a nation should train our men to be physically fit and sufficiently rugged for something more than sitting on a chair. America glories in its athletes—Joe DiMaggio, Bob Feller, Lesie MacMitchell. All three together could not win a war. Americans typically take less exercise than the English and Germans. The typical American exercise is taken by vicariously reading about great games and great athletes in the newspapers or listening to radio descriptions of other people's athletic heroism. A good stirring broadcast will increase the rapidity of the heart beat 10, 20, or 30 per cent. People have died under the strain. But this vicarious exercise leaves the muscles cold and untrained. Americans think they are fit. As a nation they are not. We should get into training. *It takes longer to build a hardy, vigorous soldier's heart than it does to build a battleship.* Let America take heed.

3 Tobacco—It has been claimed by some neuropsychiatrists that tobacco is responsible for much neurocirculatory asthenia. One objects strongly to giving unlimited cigarette supplies to soldiers in neurocirculatory asthenia wards in hospitals. Nicotine is a typical autonomic nervous system disturber, it stimulates and then paralyzes. The autonomic nervous system is the central affected field in neurocirculatory asthenia. It would seem logical to blame tobacco, especially since the cigarette is smoked so much more in the Army than out of it. Lewis and McGregor, however, found neurocirculatory asthenia occurring in nonsmokers for example, the Sikhs in India. Oversmoking is not so commonly found in the previous record of these cases as infections of a notable character. These occurred in over half the cases. The distribution of smokers and nonsmokers in a series of neurocirculatory asthenia cases is approximately a soldier distribution. Tobacco poisoning from nicotine, however, can and does occur concurrently. Tobacco aggravates the symptoms of a fair proportion of cases but not all. It affects symptoms variously, usually adversely but not always. For example, tremor is typically increased by tobacco deprivation. Much more may be said on the relationship of tobacco and the soldier.

4 Recommendations—In the Army examinations now going on, the heart is examined. The routine test of the draft board, however, does not test the circulation, although a stepping test is offered to be given for reason. Let me emphasize this. The heart is examined as a routine, yes, the circulation, no. Circulation efficiency tests are given to aviators. The first one used was my test at Mineola Field by Captain (now Colonel)

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Schneider He added to this test some exercise and pulse recovery features that became the Schneider test. This is more useful and comprehensive, although less meticulously diagnostic than my test. The Army is now working with the "flameter," which adds the element of breath holding and endurance to the Crampton, Schneider, Master-Oppenheim groups of functional tests. It is hereby recommended that a test of the efficiency of the circulation be included in the draft board examination. This, depending on the test element selected, might add three to five minutes to the procedure. It would screen out a large proportion of potential neurocirculatory physical inferiors who will, unless something of this kind is done, produce the

same effect that they did in the last war. Then, millions of hours of hard labor by Army instructors, much patience, good intent, and good tempers were lost in trying to make a soldier out of something that never was and never could be made into a soldier within a year, two years, five years, or eternity. Coupled with this waste is the loss of millions of dollars of expense—first, in hospitals and treatment of these cases and, second, in giving them pensions. The way to remedy this is to be sought by study, perhaps by the appointment of a joint civilian military medical commission. From an assembly of basic facts and an assay of their values, a procedure may be devised to the advantage of both the Army and the rest of the nation.

Postgraduate Lectures

A course on *Traumatic Surgery* has been arranged by Dr. Henry H. Rutter, of the Reconstruction Unit, New York Post-Graduate Medical School, Columbia University, New York City, for the Steuben County Medical Society. The lectures will be given at Bath, New York, at 1 00 P.M.

10/ 2/41 Fractures in General. The Treatment of Common Fractures

Henry H. Rutter, M.D.,
New York City

10/ 9/41 The Treatment of Burns and Hand Infections

David Goldblatt, M.D.,
New York City

10/16/41 The Care of Head Injuries

Carl A. Peterson, M.D.
New York City

10/23/41 Bursitis, Sprains and Strains

Willis W. Lasher, M.D.,
New York City

10/30/41 The Treatment of Fractures of the Forearm and Leg

Emmett A. Dooley, M.D.
New York City

11/ 6/41 The Treatment of Fractures of the Femur and Humerus

Walter D. Ludlum, Jr., M.D.,
New York City

11/13/41 Nerve and Tendon Injuries

Ernest Lamps, M.D.
New York City

Dr. A. F. R. Andresen, Long Island College of Medicine, Brooklyn, has arranged lectures on *General Medicine* for the Westchester County Medical Society, at White Plains, New York, at 8 30 P.M.

9/10/41 Practical Considerations of Blood Dyscrasias

Dr. Eugene R. Marzullo
75 Remsen Street,
Brooklyn

11/12/41 Recent Advances in Therapeutics

Dr. George H. Roberts, Jr.,
48 Sidney Place,
Brooklyn

Dr. Robert A. Cooke, of New York City, has arranged a course on *Allergy* for the Queens County Medical Society.

10/ 9/41 Basic Factors of Allergy

William B. Sherman, M.D.,
New York City

10 16 41 Allergic Dermatoses

Beatrice M. Kesten, M.D.,
New York City

10/23/41 Bacterial Allergy

Albert Vinder Veer, M.D., and
R. C. Grove, M.D.,
New York City

10/30/41 Inhalant and Food Allergies

Will Cook Spain, M.D.,
New York City

CONTRARY LAWS

Two contrary laws seem to be wrestling with each other nowadays, the one a law of blood and of death ever imagining new means of destruction and forcing nations to be constantly ready for the battlefield—the other, a law of peace, work, and health, ever evolving new means of delivering man from the scourges that beset him. The one seeks violent conquests, the other, the relief of humanity. The latter places one human life above any victory while the former would sacri-

fice hundreds of thousands of lives to the ambition of one. The law of which we are the instruments seeks, even in the midst of carnage, to cure the sanguinary ills of the law of war, the treatment inspired by our antiseptic methods may preserve thousands of soldiers. Which of these two laws will ultimately prevail, God alone knows. But we may assert that science will have tried, by obeying the law of humanity to extend the frontiers of life.

—Louis Pasteur

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TABLE 3—ANTERIOR ROOT SECTION
Summary of Clinical Data on 7 Patients Now Alive

No.	Age Years	Duration of Hyper- tension	Average Preopera- tive Blood Pressure	Average Postopera- tive Blood Pressure	Time Elapsed Since Operation	Present Blood Pressure	Subjective Improvement	Present Status
1	23	18 mo	190/122	150/94	6 yr 9 mo	190/105	Very marked	Disease progressive
2	32	8 yr	210/130	154/104	6 yr 3 mo	180/110	Marked	Good
3	17	18 mo	180/122	140/90	6 yr 2 mo	180/123	Very marked	Good
4	24	2+ yr	206/148	162/98	6 yr 3 mo	158/90	Very marked	Good
5	25	3 yr	184/118	156/106	6 yr 4 mo	210/100	Marked	Good
6	35	3 yr	190/122	176/114	0 yr 1 mo	220/120	Marked	Good
7	24	7 mo	190/120	162/110	5 yr 10 mo	130/78	Marked	Good

TABLE 4—ANTERIOR ROOT SECTION
Summary of Clinical Data on 12 Patients Now Dead

No.	Age Years	Duration of Hyper- tension	Average Preopera- tive Blood Pressure	Average Postopera- tive Blood Pressure	Duration of Life Post- operatively	Subjective Improvement	Cause of Death
1	33	10 yr	258/140	182/116	4 yr 8 mo	Moderate	Cerebral hemorrhage*
2	25	2 yr	210/130	162/110	4 yr 6 mo	Marked	Cardiac*
3	44	3 yr	200/132	159/106	3 yr 9 mo	Moderate	Cardiac uremia†
4	23	2 1/2 yr	284/184	197/145	2 yr 11 mo	Marked	Cardiac uremia*
5	21	2 yr	215/155	186/118	1 yr 11 mo	Moderate	Cardiac uremia†
6	46	15 yr	270/160	230/142	1 yr 3 mo	Moderate	Cardiac uremia*
7	26	3 yr	190/124	190/138	8 mo	No symptoms before operation	Cardiac uremia*
8	41	15 mo	205/139	140/103	7 mo	Marked	Cerebral hemorrhage†
9	40	2 yr	230/142	210/122	7 mo	Marked	Cerebral hemorrhage, cardiac†
10	45	12 yr	230/150	200/130	2 mo	Moderate	Cardiac uremia†
11	37	7 yr	230/140	232/140	2 mo	Questionable	Cerebral hemorrhage†
12	37	2 yr	270/170	210/140	2 mo	Moderate	Cerebral hemorrhage*

* Autopsy obtained

† No autopsy obtained

disease was always interrupted we cannot be sure because many of these patients died as the result of the disease within a period of the ordinary life expectancy as computed from vital statistic tables

Craig and Adson,³ in 1937, reported on 27 patients subjected to extensive anterior root section. They recorded their results as follows: good, 13, fair, 6, failure, 6, deaths, 2. Smithwick,⁴ of Boston, has devised and used a type of splanchnicotomy which provides for the division of the communicating rami of the dorsals 9, 10, 11, and 12 with removal of the sympathetic trunk. In addition, lumbar 1 and 2 are interrupted, making the procedure even more radical than anterior root section. The results reported by him are most encouraging and bear further study.

Suprardiaphragmatic splanchnic nerve resection with the interruption of the thoracic sympathetic chain was performed in 12 patients and was well borne in all (Table 5). There were no complications or fatalities. The reduction in arterial pressure, which occurred following operation, within six months returned to the preoperative level in all patients. Subjective improvement—consisting of lessening in frequency and severity of headaches, decrease in the degree of nervousness, tenseness, and irritability—occurred in the majority of patients with essential hyper-

tension. Furthermore, the fatigue occurring on exertion was less evident. Improvement in those with malignant hypertension was transient.

Renal efficiency was unaffected by the operation. It also appeared to have no marked effect on the heart, as judged by electrocardiographic records or roentgen-ray photographs. Reduction in intensity of the constriction in retinal arterioles occurred in all of the cases except 1 with malignant hypertension, suggesting to us that arteriolar relaxation occurs in regions other than those denervated. We have observed this constriction to return after several months.

Peet, Woods, and Braden⁵ have reported the largest series of patients treated by suprardiaphragmatic splanchnicotomy and lower dorsal sympathetic ganglionectomy. They conclude that 86.6 per cent of the patients have been relieved of major symptoms such as headaches and that 81.3 per cent had improvement or complete restoration from incapacitation. However, 30 per cent of the patients operated upon were dead within a period of nine months to seven years and a

TABLE 5—SUPRADIAPHRAGMATIC SPLANCHNIC
RESECTION

12 Patients (operation complete in all)
6 Patients are dead
6 Patients are alive

AN EVALUATION OF THE SURGICAL TREATMENT OF HYPERTENSION

GEORGE J HEUER, M D , and FRANK GLENN, M D , New York City

CARDIOVASCULAR renal disease ranks foremost among the causes of death in our present-day population. Hypertension plays an important role in this group. During the past decade a great deal of attention has been directed toward this subject. The laboratory investigator has developed a method for producing experimental hypertension in animals which should lead to a better understanding of its pathogenesis, the clinicians, both physician and surgeon, have extended their efforts. Old methods have been revised, new remedies are being brought forth, and surgical procedures have been introduced in our attempts to improve the treatment of patients. The surgical treatment of hypertension is as yet an experiment in therapeutics.

It is our purpose to present the data we have collected over a period of eight years in such an attempt and to comment briefly on the reports of similar studies recently appearing in the literature. During the first half of this period the work was followed in close cooperation with Dr Irvine H Page¹ of the Rockefeller Hospital. After Dr Page left New York and began work in Indianapolis, we continued this study entirely within the New York Hospital in collaboration with Dr Harold Stewart.²

Three types of operation have been employed. They are (1) rhizotomy, or division of the anterior nerve roots of the spinal cord, (2) supradiaphragmatic resection of the splanchnic nerves combined with lower dorsal ganglionectomy, and (3) subdiaphragmatic resection of the splanchnic nerves combined with interruption of the first and second lumbar sympathetic ganglions (Table 1).

TABLE 1—FIFTY-SEVEN HYPERTENSION PATIENTS

Anterior root section	23
Supradiaphragmatic splanchnic resection	12
Subdiaphragmatic splanchnicotomy and ganglionectomy, 1 and 2	22

Of these 57 patients selected for surgical treatment, the operative procedures were completed in 49. Of the 8 patients in whom the operation was not completed only 1 remains

alive. Of the 49 patients in whom the operation was completed, 23 are now dead. The time that has elapsed since operation varies from three months to six and one-half years (Table 2).

TABLE 2—ANTERIOR ROOT SECTION (23 PATIENTS)

Time elapsed since operation—four and one-half to six and one-half years
Operation incomplete in 4 patients
1 died near the end of the operation
1 died of meningitis after the first stage
1 refused to have the second stage and died two months later
1 developed a transverse myelitis after the first stage
Operation was completed in 19 patients
12 are dead 7 are alive

Rhizotomy, or anterior root section, consists in the division of the anterior nerve roots of the spinal cord from the sixth dorsal to the second lumbar vertebra. All the sympathetic fibers carrying vasoconstrictor impulses to abdominal vessels below the diaphragm are thus divided. This operation differs from splanchnicotomy because the preganglionic fibers are divided instead of the postganglionic rami.

The operation is usually performed in two stages. The first consists of a laminectomy with exposure of the dura, the second consists of the opening of the dura and division of the nerve roots. This is a formidable procedure, one that is time-consuming and not without danger because of the possibility of an accident to the cord with the appearance of the symptoms of a transverse myelitis (Tables 3 and 4).

Of 23 patients selected for this operation, 19 were carried on to completion and, of these 19, 7 are now alive. All of those who had severe malignant hypertension at the time of the operation are dead. Three years and nine months was the longest period to elapse between operation and death in this group. Following operation there was a fall in blood pressure which, over a period of two to three years, approached but seldom reached or surpassed the preoperative level. The subjective and some of the objective manifestations of the disease were definitely relieved. Specifically, we refer to the striking relief from headaches, nervousness, and early fatigue on exertion. In many of these patients we observed the disappearance of papilledema and hemorrhage from the fundi following operation. That the

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, May 1, 1941.

From the Department of Surgery of the New York Hospital and Cornell University Medical College.

TABLE 3—ANTERIOR ROOT SECTION
Summary of Clinical Data on 7 Patients Now Alive

No	Age, Years	Duration of Hypertension	Average Preoperative Blood Pressure	Average Postoperative Blood Pressure	Time Elapsed Since Operation	Present Blood Pressure	Subjective Improvement	Present Status
1	23	18 mo	190/122	150/94	6 yr 9 mo	180/105	Very marked	Disease progressive
2	32	8 yr	210/130	154/104	6 yr 3 mo	150/110	Marked	Good
3	17	18 mo	180/122	140/90	6 yr 2 mo	180/123	Very marked	Good
4	24	2+ yr	206/148	162/98	6 yr 3 mo	153/90	Very marked	Good
5	25	3 yr	184/110	150/100	6 yr 4 mo	210/100	Marked	Good
6	35	3 yr	190/122	170/114	6 yr 1 mo	220/120	Marked	Good
7	24	7 mo	100/120	162/110	5 yr 10 mo	130/78	Marked	Good

TABLE 4—ANTERIOR ROOT SECTION
Summary of Clinical Data on 12 Patients Now Dead

No	Age, Years	Duration of Hypertension	Average Preoperative Blood Pressure	Average Postoperative Blood Pressure	Duration of Life Post-operatively	Subjective Improvement	Cause of Death
1	33	10 yr	258/140	182/116	4 yr 8 mo	Moderate	Cerebral hemorrhage*
2	25	2 yr	210/130	162/110	4 yr 6 mo	Marked	Cardiac*
3	44	3 yr	200/132	158/100	3 yr 9 mo	Moderate	Cardiac, uremia†
4	22	2 1/2 yr	284/184	197/145	2 yr 11 mo	Marked	Cardiac, uremia*
5	21	2 yr	215/155	186/118	1 yr 11 mo	Moderate	Cardiac, uremia†
6	46	15 yr	270/180	230/142	1 yr 3 mo	Moderate	Cardiac, uremia*
7	26	3 yr	190/124	190/133	8 mo	No symptoms before operation	Cardiac, uremia*
8	41	15 mo	205/130	140/103	7 mo	Marked	Cerebral hemorrhage†
9	40	2 yr	230/142	210/122	7 mo	Marked	Cerebral hemorrhage, cardiac†
10	45	12 yr	230/130	200/130	2 mo	Moderate	Cardiac, uremia†
11	37	7 yr	230/140	232/140	2 mo	Questionable	Cerebral hemorrhage†
12	37	2 yr	270/170	210/140	2 mo	Moderate	Cerebral hemorrhage*

* Autopsy obtained
† No autopsy obtained

disease was always interrupted we cannot be sure because many of these patients died as the result of the disease within a period of the ordinary life expectancy as computed from vital statistic tables.

Craig and Adson,³ in 1937, reported on 27 patients subjected to extensive anterior root section. They recorded their results as follows: good, 13, fair, 6, failure, 6, deaths, 2. Smithwick,⁴ of Boston, has devised and used a type of splanchnicotomy which provides for the division of the communicating rami of dorsals 9, 10, 11, and 12 with removal of the sympathetic trunk. In addition, lumbar 1 and 2 are interrupted, making the procedure even more radical than anterior root section. The results reported by him are most encouraging and bear further study.

Suprardiaphragmatic splanchnic nerve resection with the interruption of the thoracic sympathetic chain was performed in 12 patients and was well borne in all (Table 5). There were no complications or fatalities. The reduction in arterial pressure, which occurred following operation, within six months returned to the preoperative level in all patients. Subjective improvement—consisting of lessening in frequency and severity of headaches, decrease in the degree of nervousness, tenseness, and irritability—occurred in the majority of patients with essential hyper-

tension. Furthermore, the fatigue occurring on exertion was less evident. Improvement in those with malignant hypertension was transient.

Renal efficiency was unaffected by the operation. It also appeared to have no marked effect on the heart, as judged by electrocardiographic records or roentgen-ray photographs. Reduction in intensity of the constriction in retinal arterioles occurred in all of the cases except 1 with malignant hypertension, suggesting to us that arteriolar relaxation occurs in regions other than those denervated. We have observed this constriction to return after several months.

Peet, Woods, and Braden⁵ have reported the largest series of patients treated by suprardiaphragmatic splanchnicotomy and lower dorsal sympathetic ganglionectomy. They conclude that 86.6 per cent of the patients have been relieved of major symptoms such as headaches and that 81.3 per cent had improvement or complete restoration from incapacitation. However, 30 per cent of the patients operated upon were dead within a period of nine months to seven years and a

TABLE 5—SUPRADIAPHRAGMATIC SPLANCHNIC RESECTION

12 Patients (operation complete in all)
6 Patients are dead
6 Patients are alive

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the exception of 1 patient
months after operation and
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and three months and died of
in disease. Those who remain
been, for the most part, markedly
They have had relief of symptoms
of blood pressure to the extent
have returned to their regular occupa-
the remaining 2 patients, we feel, are
than they would have been without the
operation. However, we cannot cite in this
an instance of complete cure with total
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SPLANCHNICOTOMY
AND 2 (22 PATIENTS)SPLANCHNICOTOMY
Patients Now Alive

Time Since Operation	Present Blood Pressure	Subjective Improvement	Present Status
1 yr 2 mo	200/110?	Moderate	Good
3 yr 8 mo	190/115	Marked	Good
3 yr 2 mo	178/96	Marked	Good
3 yr	180/140	Very marked	Good
3 yr 1 mo	194/116	Moderate	Fair
3 yr 2 mo	226/116	Moderate	Fair

DIAPHRAGMATIC SPANCHNICOTOMY
Patients Now Dead

Time Since Operation	Duration of Life Post- operatively	Subjective Improvement	Cause of Death
1 yr 2 mo	5 yr 3 mo	Marked	Cerebral hemorrhage*
1 yr 3 mo	4 yr 6 mo	Marked	Cardiac†
1 yr 10/100	3 yr 1 mo	Moderate	Cardiac uremia†
1 yr 10/96	1 yr 3 mo	Moderate	Cardiac, uremia†
1 yr 10/150	1 yr 1 mo	None	Cardiac†
1 yr 10/160	3 mo	None	Cardiac pheochromocytoma*

Twenty-two patients were selected for subdiaphragmatic splanchnicotomy and interruption or resection of the first and second lumbar ganglia. The operation was carried to completion in 18 cases (Table 8). Two patients with severe malignant hypertension died after the first operation in uremia, 1 died of a cerebral accident after the first operation. One patient refused the second operation and died. The reduction of the blood pressure which occurred following the operation was marked but tended to return to the preoperative level within a period of six months.

There was marked subjective improvement in many of the patients, consisting of lessening in frequency and severity of headaches, nervousness, tenseness, and irritability and a decrease of fatigue (Table 9).

The renal efficiency was unaffected by the operation as indicated by urinary findings and the urea clearance test. The heart has not been observed to undergo any changes as determined by electrocardiographic records or roentgen-ray examination. Reduction in intensity of constriction of the retinal arterioles has occurred in the majority of patients whose pressure has been lowered. With a re-elevation of the blood pressure some patients failed to exhibit a return of this constriction (Table 10).

Adson² reported from the Mayo Clinic their experience with subdiaphragmatic splanchnicotomy as follows. good, 29, fair, 35, temporary improvement, 35, and failures, 25. These results were based on a two-year or more check-up. He and his associates recom-

TABLE 9—SPLANCHNIC RESECTION—LUMBAR GANGLIONECTOMY
Summary of Clinical Data on 13 Patients Now Alive

No.	Age, Years	Duration of Hypertension	Average Preoperative Blood Pressure	Average Postoperative Blood Pressure	Time Elapsed Since Operation	Present Blood Pressure	Subjective Improvement	Present Status
1	38	6 yr	226/120	180/	3 yr 7 mo.	180/100	Moderate	Fair
2	40	2 yr	215/160	120/80	2 yr 3 mo.	200/110	Marked	Good
3	36	4 1/2 yr	230/140	190/110	2 yr 1 mo	210/120	Moderate	Fair
4	33	9 yr	240/130	180/120	1 yr 9 mo	210/120	Moderate	Fair
5	37	8 yr	220/130	190/100	1 yr 4 mo.	185/110	None	Fair
6	33	3 1/2 yr	240/135	170/100	1 yr 2 mo	198/122	Moderate	Fair
7	19	2 yr	205/115	176/98	1 yr	210/110	None	Fair
8	38	8 yr	262/148	180/95	1 yr	204/105	Moderate	Fair
9	39	10 yr	208/126	150/90	10 mo	184/120	None	Good
10	35	10 yr	220/110	168/100	7 mo	180/130	Marked	Good
11	32	2 1/2 yr	195/100	140/80	5 mo	185/98	Marked	Good
12	43	1 1/2 yr	235/130	178/90	1 yr 9 mo	270/152	Moderate	Fair
13	35	9 yr	190/130	154/104	2 mo	170/103	Marked	Good

TABLE 10—SPLANCHNIC RESECTION—LUMBAR GANGLIONECTOMY
Summary of Clinical Data on 5 Patients Now Dead

No.	Age, Years	Duration of Hypertension	Average Preoperative Blood Pressure	Average Postoperative Blood Pressure	Duration of Life Post-operatively	Subjective Improvement	Cause of Death
1	35	3 yr	250/150	200/110	1 yr 1 mo	Moderate	Cardiac, uremia*
2	27	3 yr	220/120	200/100	10 mo.	Marked	Hemorrhage from duodenal ulcer*
3	26	1 1/2 yr	235/140	180/110	8 mo.	None	Cardiac uremia†
4	32	2 yr	210/140	190/130	7 mo	Moderate	Cardiac, uremia†
5	32	1 1/2 yr	230/160	193/136	3 mo.	Moderate	Cardiac uremia†

* Autopsy obtained.

† No autopsy obtained

mend the procedure because of its comparative safety and fairly high beneficial results. In Boston, Smithwick⁴ was unsatisfied with his results in this operation and has supplemented it in an attempt to denervate more completely the splanchnic area.

The medical and surgical treatment of hypertension is admittedly, for the most part, ineffective. By medical treatment we refer to that therapy which is dependent upon the use of various medications and the employment of those regimens outlined by any physician. The surgical treatment of hypertension, on the other hand, consists of the direct attack upon the disease by a surgical procedure. These attacks have been carried out by a few surgeons in the United States and have consisted of operations interrupting or removing those parts of the sympathetic nervous system which are believed to control the blood supply of the kidney and splanchnic area. From the figures that we have presented, it is evident that the procedures we employed are not sufficient to cure or interrupt the progress of this disease.

Of great importance in our experience, however, has been the alleviation of symptoms which has occurred so frequently in this group of cases that we can, without hesitating, state that the patients as a whole have been benefited. This statement would be valueless indeed if we were unable to be more specific. It is for this reason that we have selected the

three most common symptoms associated with the hypertensive patients as a subject for critical investigation so far as our surgical therapy is concerned. These symptoms are (1) headache, (2) nervousness, and (3) fatigue on exertion.

Of the 57 patients selected for operation, one of the three procedures described was carried to completion in 49. Headache was one of the three chief complaints in 48 cases. Forty-five of these patients were completely relieved of headaches for a time following operation. Many of them have had no headaches since, although the time elapsed since operation has extended up to six and one-half years.

It has been our experience from prolonged observations of these hypertensive patients that many of them complain of nervousness, a sense of tenseness, and hyperirritability that are difficult to correlate as a single manifestation of the disease. We have sought to group these manifestations under one presenting symptom labeled nervousness. It is second only in importance to headaches. It is this symptom that prevents the hypertensive patient from resting, adds so much to his general discomfort, and makes him so susceptible to disturbing stimuli that the first complaint of headache may be precipitated.

Following operation, 36 of the 49 patients have been completely relieved of this symptom, 8 have been partially relieved, and in the remainder it was difficult to determine whether

TABLE 6—SUPRADIAPHRAGMATIC SPLANCHNICOTOMY
Summary of Clinical Data on 6 Patients Now Alive

No	Age, Years	Duration of Hypertension	Average Preoperative Blood Pressure	Average Postoperative Blood Pressure	Time Elapsed Since Operation	Present Blood Pressure	Subjective Improvement	Present Status
1	25	3 yr	200/120	100/80	5 yr 2 mo	200/110*	Moderate	Good
2	37	3 yr	220/125	110/80	5 yr 8 mo	190/115	Marked	Good
3	48	1+yr	230/120	170/100	5 yr 2 mo	178/96	Marked	Good
4	37	5 yr	220/140	200/110	3 yr	180/140	Very marked	Good
5	47	8+yr	230/120	180/110	3 yr 1 mo	194/118	Moderate	Fair
6	42	10 yr	224/120	200/100	3 yr 2 mo	226/116	Moderate	Fair

TABLE 7—SUPRADIAPHRAGMATIC SPLANCHNICOTOMY
Summary of Clinical Data on 6 Patients Now Dead

No	Age, Years	Duration of Hypertension	Average Preoperative Blood Pressure	Average Postoperative Blood Pressure	Duration of Life Post-operatively	Subjective Improvement	Cause of Death
1	46	6 yr	180/130	155/120	5 yr 3 mo	Marked	Cerebral hemorrhage*
2	34	5 yr	190/150	140/90	4 yr 6 mo	Marked	? Cardiac†
3	35	7 yr	240/130	170/100	3 yr 1 mo	Moderate	Cardiac uremia†
4	25	7 yr	208/136	160/96	1 yr 3 mo	Moderate	Cardiac uremia†
5	24	2 yr	240/180	215/150	1 yr 1 mo	None	Cardiac†
6	18	2 yr	250/160	250/160	3 mo	None	Cardiac pheochromocytoma*

* Autopsy obtained

† No autopsy obtained.

majority of these died from the cardiovascular renal disease. To us, their report is optimistic indeed because they have had relief of symptoms in so many patients with apparent interruption of the progress of the disease.

Although our series is quite small—there were only 12 patients—they have been carefully studied and selected for operation (Tables 6 and 7). The eldest was 48 and the youngest 18, the diastolic pressure was 120 or over in each instance. Within a period of about five years after operation, 6 patients are alive and 6 are dead, with the exception of 1 patient who died at three months after operation and at postmortem examination was found to have a pheochromocytoma, all lived from one year to five years and three months and died of cardiovascular disease. Those who remain alive have been, for the most part, markedly improved. They have had relief of symptoms and lowering of blood pressure to the extent that 4 have returned to their regular occupations. The remaining 2 patients, we feel, are better than they would have been without the operation. However, we cannot cite in this group an instance of complete cure with total relief of symptoms, a maintained normal blood pressure, and a return of the vessels to normal limits.

Twenty-two patients were selected for subdiaphragmatic splanchnicotomy and interruption or resection of the first and second lumbar ganglia. The operation was carried to completion in 18 cases (Table 8). Two patients with severe malignant hypertension died after the first operation in uremia, 1 died of a cerebral accident after the first operation. One patient refused the second operation and died. The reduction of the blood pressure which occurred following the operation was marked but tended to return to the preoperative level within a period of six months.

There was marked subjective improvement in many of the patients, consisting of lessening in frequency and severity of headaches, nervousness, tenseness, and irritability and a decrease of fatigue (Table 9).

The renal efficiency was unaffected by the operation as indicated by urinary findings and the urea clearance test. The heart has not been observed to undergo any changes as determined by electrocardiographic records or roentgen-ray examination. Reduction in intensity of constriction of the retinal arterioles has occurred in the majority of patients whose pressure has been lowered. With a re-elevation of the blood pressure some patients failed to exhibit a return of this constriction (Table 10).

Adson³ reported from the Mayo Clinic their experience with subdiaphragmatic splanchnicotomy as follows: good, 29, fair, 35, temporary improvement, 35, and failures, 25. These results were based on a two-year or more check-up. He and his associates recom-

TABLE 8—SUBDIAPHRAGMATIC SPLANCHNICOTOMY AND LUMBAR GANGLIOECTOMY, 1 AND 2 (22 PATIENTS)

Operation incomplete in 4 patients
1 refused second operation and is now dead
1 died of cerebral accident after first operation
2 died of uremia after first operation
Operation completed in 18 patients
5 are dead 13 are alive

CONTROL OF PAIN AND DISCOMFORT BY THE SUBCUTANEOUS INJECTION OF OXYGEN

JOHN H. EVANS, M.D., Buffalo

BEFORE coming to the subject matter of this paper I should like to say a few words about the development of our specialty which I have followed with great interest during the twenty-eight years I have been an anesthetist.

In 1913 anesthesia was a neglected and un-honored field. Today it is receiving world-wide attention and is recognized as one of the most important of the specialties.

In 1913 there were only a few physicians who condescended to give anesthetics, while today there are over 2,000, all of whom are proud of being classified as anesthetists.

In 1913 organization of professional anesthesia was in its infancy. Today, we have the International Anesthesia Research Society, the American Society of Anesthetists, Inc. and a section in the American Medical Association as well as in many state medical societies. In addition, anesthesia societies have been organized in nearly all of the foreign countries and there are many local societies in the large cities of the United States and Canada.

In 1913 there was no publication devoted to anesthesia, the occasional article written on the subject being published in the various medical journals, and textbooks on anesthesia were few. Today we have two journals in this country devoted exclusively to anesthesia—namely, *Current Researches in Anesthesia and Analgesia* and *Anesthesiology*. We also have textbooks that cover all types and methods of administering anesthetics and *Anesthesia Abstracts* of which the tenth volume is now on the market. In England *The British Journal of Anesthesia* made its debut in 1927.

In 1913 instruction in anesthesia was limited. Many of the medical colleges did not even include it in their curriculum, and the graduate in medicine was not required to have any knowledge of the subject. The few who were desirous of learning the art and science of anesthesia found there was no place to go and their practical knowledge could be obtained only by the trial-and-error method. The designation "Professor of Anesthesia" did not exist.

Today, instruction in the various phases of

anesthesia is given in all medical colleges, many of them having chairs in anesthesia, the medical student cannot graduate without some knowledge of the subject and there are several teaching hospitals where a three-year fellowship can be acquired.

This remarkable change in the status of anesthesia has been brought about by the efforts of many professional and scientific workers whose object has been to make surgery safer for the patient. The list is too long to give each one the credit he deserves at this time. However, I cannot refrain from mentioning one who devoted his entire life to the advancement of anesthesia and to whom we owe much for the present high standards of our specialty—namely, the late Dr. Frank H. McMechan.

The specialist in anesthesia was formerly confined to the administration of anesthetics but during recent years he has taken on additional responsibilities.

In my presidential address at the Sixth Annual Congress of Anesthetists in 1927¹ I made two recommendations: (1) that inhalation therapy be combined with the specialty of anesthesia, and (2) that 100 per cent oxygen be used in the treatment of anoxemia to replace the ineffectual 40 to 60 per cent oxygen dosage then in vogue.

The first of these recommendations met with prompt approval. Not only has inhalation therapy been added to our specialty but in several hospitals therapeutic nerve block and blood transfusions have also been allotted to the department of anesthesia.

The recommendation relative to 100 per cent oxygen for years met with vigorous opposition² notwithstanding the frequent publications³ regarding its safety and desirability. However, in recent years considerable progress has been made. There are several⁴ who now advocate and use 100 per cent oxygen but who are apparently still imbued with fear of its prolonged administration, otherwise they would not reduce the oxygen concentration to 50 to 70 per cent after forty-eight hours although dealing with severe anoxemia.

It has been shown repeatedly⁵ that these patients are still cyanotic while inhaling 60 per cent oxygen and are often in the death zone of asphyxia. The comfort, and often the

¹Chairman's address, read before the Section on Regional and General Anesthesia at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 29, 1941.

or not this symptom had been effected. We are aware that the realization that an operation has been performed for a serious condition may do much to place the mind of the individual at rest and enable him to relax more readily than before. However, we are convinced that there is something much more tangible and actual than this and that the patients are not exaggerating when they claim they are much less nervous.

Early fatigue on exertion associated with hypertension was present in all of the patients. From a review of their history and from discussions with the patients it is felt that only 34 or 59.6 per cent actually complained of early fatigue. Patients in whom headaches were severe and who were subject to a state of nervousness and tenseness were most frequently prone to complain of fatigue on exertion. This is not unexpected because both the first and second symptoms are likely to prevent the patient from securing a normal amount of rest and, in addition, consume energy that otherwise would not be required. Furthermore, there is the lack of reserve so far as the heart is concerned, together with the added work that is required of it. These manifestations of the disease are of tremendous importance to the patients, and to relieve them either by medical or surgical means is to make life more pleasant for them and probably prolong it as well. Unfortunately, we do not possess instruments of accuracy for measuring such improvement. If we were but able to measure the increase in intensity of these symptoms as we are able to measure the blood pressure with the mercury manometer, perhaps we would be justified in

being more adamant in insisting upon the surgical treatment of these unfortunates.

The surgical treatment, consisting of the above three described operations, was embarked upon as an experiment. We have carefully studied a small group of patients in an effort to determine the merit of this therapy. We believe further investigation with this type of therapy is indicated because (1) it has been followed by a lowering of blood pressure as a result of the operative procedures, (2) changes in the fundi have occurred and in many cases persisted, (3) headaches have been relieved for variable periods of time, (4) nervousness has been diminished, and (5) early fatigue has been lessened.

Now, because we find among these five factors a ray of hope, we urge the continuation of surgical therapy on an experimental basis, employing even more complete operations in denervating the splanchnic area such as that described by Smithwick.⁴ Improvement in the methods of surgical attack upon this disease may provide for its interruption as well as the alleviation of symptoms. If this can be done, the surgeons will have made a contribution to the treatment of cardiovascular renal disease.

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1942 Registration Cards Delayed

[From Dr. Robert R. Hannon, Secretary of the New York State Board of Medical Examiners, came the following announcement on September 26.]

"Due to a reorganization of the office procedure in annual registration and delay caused by conditions arising from national defense restrictions the Department will not be able to send application cards for annual registration for the calendar year 1942 to physicians until early November. This delay is unavoidable but the application cards will be mailed as early as possible."

about and the pain relieved is a difficult question to answer satisfactorily

The oxygen, in cases of acutely inflamed joints, muscles, or nerves, probably has a three-fold action. (1) It seems to act as a buffer between inflamed cells, separating them, opening lymph channels for drainage, and reducing pressure, (2) it probably kills certain types of bacteria, and (3) it may neutralize toxins and stimulate local circulation of blood

The clinical results have been so uniform in acute conditions that it is possible to predict them in advance, usually there is prompt relief of pain, within twenty-four hours the local temperature drops, the redness disappears, the swelling is reduced, and the tissues become much less sensitive to pressure

The beneficial results obtained in chronic conditions are probably due mainly to the same factors as in acute cases. However, as there are more pathologic changes—such as thickened tissues, induration, diminished blood and oxygen supply—more time is required to produce results, and in some cases none have been obtained. Apparently the function of pure oxygen when it comes in contact with abnormal tissue is to soften it so that absorption eventually takes place. This effect has been observed to occur in stiff fingers following infection, the palmar nodules of early Dupuytren's contracture, and the persistent areas of induration at the site of hyperdermics of drugs

X-rays show that the oxygen not only fills the subcutaneous spaces but permeates the deeper tissues until it reaches bony structure. This explains why results are possible in other than superficial conditions

Acute Inflammatory Conditions

Among the acute diseases for which we have found subcutaneous oxygen to be beneficial are atrophic and hypertrophic arthritis, sciatica, shingles, myositis, neuritis, lumbago, boils, and abscesses. None of the infections treated were tubercular. An advanced case of erysipelas was treated but without results. The number of injections necessary in acute cases vary. In some, one injection only has been sufficient, while others, especially in acute atrophic arthritis of the knees, may require treatment for several weeks before a return to normal is accomplished

Trauma

The pain, swelling, and tenderness resulting from trauma responds to oxygen in a similar manner as in acute inflammatory conditions

However, when there is marked swelling the pain may be increased for the first ten to twelve hours, after which it is either greatly reduced or disappears. The tenderness in these cases, as in acute conditions, persists after the pain has gone, gradually disappearing in a few days. Apparently, the oxygen hastens the repair of damaged tissues and function is restored sooner than when oxygen is not used

The following are 2 cases of pain relief following trauma

1 A dentist, aged 45, a week after the reduction of a dislocated hip, suffered severe pain when walking, which he did with the aid of a cane. Immediately after the injection of oxygen he was able to walk without his cane and with little pain. The following day the pain had all disappeared and did not return

2 The right hand of a woman, aged 53, became swollen, cold, cyanotic, and painful fourteen weeks after a Colles fracture. It looked as though amputation would be necessary. There was some relief of pain after the first injection of oxygen and less cyanosis. Following the second injection nearly all the pain disappeared and the color of the hand became pink. The treatment was continued for two months, three injections being given weekly, with complete recovery

Skin Diseases

Although our experience with skin lesions has been limited, the good results obtained in some of the cases indicate that this might be a fertile field for further investigation. Several cases of eczema have been treated with benefit. There was only 1 case, diagnosed as contact dermatitis, that showed no improvement

Oxygen has also proved beneficial in cases of ringworm

Pruritus Ani

Subcutaneous oxygen is probably the best remedy for pruritus ani that has so far been found

Apparently the first patient ever to be given this treatment was a man, aged 48. The pruritus ani was of eighteen months' duration and was complicated by a dermatitis involving the buttocks and the inner aspects of both thighs. He had been treated by his family physician and for the last four months by a skin specialist, but without any improvement. The itching was relieved after the first injection of oxygen and the dermatitis was improved. From November 19, 1935, to December 21, 1935, he was given three treatments a week, at which time the itching and dermatitis had disappeared and treatment was discontinued. On February 7, 1936, the patient returned complaining of a re-

life, of the patient depends on keeping the arterial blood oxygen at its normal level not only for a forty-eight-hour period but for as many days or weeks as the cause of the anoxemia persists. Is it just to the patient or good therapeutics to limit arbitrarily dosage with entire disregard to physiologic requirements?

The word "anesthesiology" has been coined to cover the enlarged field of the anesthetist, and this designation has been approved by the American Medical Association and the American Boards.

Subcutaneous Oxygen

Although Damarquay⁵ in 1865 announced the cure of a case of senile gangrene by the injection of oxygen, little attention was given to this type of therapy until 1911. Since then there has been a steadily growing interest so that at the present time the literature on the subject is quite extensive.

For many years it was used to a greater extent in Europe than in this country. The great majority of clinicians who have employed this therapy have injected the oxygen into healthy tissue, relying on the increase in the oxygen content of the blood for beneficial results. It has been used mostly in the diseases and conditions of which anoxemia is a complicating factor.

Even in the treatment of localized lesions and diseases the oxygen was usually injected into healthy tissue remote from the pathology.

The oxygen has, however, been given in the past to a limited extent for its local effect, but in general the importance of direct contact between oxygen and diseased tissues has been overlooked.

When, in 1935, I decided to investigate the merits, if any, of subcutaneous oxygen in diseases not complicated by anoxemia, it was with the idea of increasing the oxygen content of the blood by injecting the oxygen into healthy tissue. However, as this method failed to produce any beneficial results in the first case treated—which was for eczema—the oxygen was injected directly into the affected areas. The results were surprising. When the patient returned forty-eight hours later for his second treatment the eczematous areas were greatly reduced in size and there was much less itching. After six weeks, the injections being given three times weekly, there was complete disappearance of the eczema and itching.

It was then decided that in the future the

oxygen should, when possible, be injected directly into the diseased tissues. The importance of following this rule was subsequently proved in cases of acute arthritis by injecting the oxygen into healthy tissue remote from the pathology. This was done for four consecutive days, but no benefit was obtained until the oxygen was injected directly into the affected areas.

Another rule was later adopted—namely, that when it was not feasible to inject the oxygen directly into the pathology it should be injected as close to it as possible. The basis for this rule was the good results obtained in a prolonged attack of asthma when the oxygen was injected in each side of the spine in the thoracic region. For two days previous the continuous inhalation of 100 per cent oxygen plus the injection of oxygen into the thighs and abdominal wall had proved ineffectual.

The injection of oxygen in the back, while not always successful, has proved equally beneficial in several other similar cases, the asthmatic attack beginning to subside as soon as the oxygen was injected and disappearing entirely in from three to five days.

The reason for the good results obtained in these cases cannot be credited to any increase in the arterial blood oxygen since no more oxygen was injected in the back than in the other locations. The effect on the spinal nerves, brought about by reduction of pressure due to localized edema, and the improved circulation produced by the oxygen may be possible explanations. The nervous system is more quickly affected by reduction in normal oxygen supply than the other tissues.

The injecting of oxygen in the back for the treatment of pathology in the chest and abdominal cavity has not been as yet thoroughly investigated, but encouraging results have already been obtained in a few conditions, such as relief of pain and discomfort in cases of angina pectoris, coronary thrombosis, cardiac dyspnea, and nephritis.

It is not possible within the scope of this paper to give more than a general idea of the results obtained with subcutaneous oxygen during the past five years. A detailed report of 100 cases covering the first year's work was published in 1937.⁶

We have found that relief of pain and discomfort can be obtained in a variety of pathologic conditions. Unlike nerve blocking from which we can expect relief of pain only, the oxygen usually has a beneficial effect upon the pathology. Why this effect is brought

about and the pain relieved is a difficult question to answer satisfactorily

The oxygen, in cases of acutely inflamed joints, muscles, or nerves, probably has a three-fold action (1) It seems to act as a buffer between inflamed cells, separating them, opening lymph channels for drainage, and reducing pressure, (2) it probably kills certain types of bacteria, and (3) it may neutralize toxins and stimulate local circulation of blood

The clinical results have been so uniform in acute conditions that it is possible to predict them in advance, usually there is prompt relief of pain, within twenty-four hours the local temperature drops, the redness disappears, the swelling is reduced, and the tissues become much less sensitive to pressure

The beneficial results obtained in chronic conditions are probably due mainly to the same factors as in acute cases. However, as there are more pathologic changes—such as thickened tissues, induration, diminished blood and oxygen supply—more time is required to produce results, and in some cases none have been obtained. Apparently the function of pure oxygen when it comes in contact with abnormal tissue is to soften it so that absorption eventually takes place. This effect has been observed to occur in stiff fingers following infection, the palmar nodules of early Dupuytren's contracture, and the persistent areas of induration at the site of hyperdermies of drugs

X-rays show that the oxygen not only fills the subcutaneous spaces but permeates the deeper tissues until it reaches bony structure. This explains why results are possible in other than superficial conditions

Acute Inflammatory Conditions

Among the acute diseases for which we have found subcutaneous oxygen to be beneficial are atrophic and hypertrophic arthritis, sciatica, shingles, myositis, neuritis, lumbago, boils, and abscesses. None of the infections treated were tubercular. An advanced case of erysipelas was treated but without results. The number of injections necessary in acute cases vary. In some, one injection only has been sufficient, while others, especially in acute atrophic arthritis of the knees, may require treatment for several weeks before a return to normal is accomplished

Trauma

The pain, swelling, and tenderness resulting from trauma responds to oxygen in a similar manner as in acute inflammatory conditions

However, when there is marked swelling the pain may be increased for the first ten to twelve hours, after which it is either greatly reduced or disappears. The tenderness in these cases, as in acute conditions, persists after the pain has gone, gradually disappearing in a few days. Apparently, the oxygen hastens the repair of damaged tissues and function is restored sooner than when oxygen is not used

The following are 2 cases of pain relief following trauma

1 A dentist, aged 45, a week after the reduction of a dislocated hip, suffered severe pain when walking, which he did with the aid of a cane. Immediately after the injection of oxygen he was able to walk without his cane and with little pain. The following day the pain had all disappeared and did not return

2 The right hand of a woman, aged 53, became swollen, cold, cyanotic, and painful fourteen weeks after a Colles fracture. It looked as though amputation would be necessary. There was some relief of pain after the first injection of oxygen and less cyanosis. Following the second injection nearly all the pain disappeared and the color of the hand became pink. The treatment was continued for two months, three injections being given weekly, with complete recovery

Skin Diseases

Although our experience with skin lesions has been limited, the good results obtained in some of the cases indicate that this might be a fertile field for further investigation. Several cases of eczema have been treated with benefit. There was only 1 case, diagnosed as contact dermatitis, that showed no improvement

Oxygen has also proved beneficial in cases of ringworm

Pruritis Ani

Subcutaneous oxygen is probably the best remedy for pruritis ani that has so far been found

Apparently the first patient ever to be given this treatment was a man, aged 48. The pruritis ani was of eighteen months' duration and was complicated by a dermatitis involving the buttocks and the inner aspects of both thighs. He had been treated by his family physician and for the last four months by a skin specialist, but without any improvement. The itching was relieved after the first injection of oxygen and the dermatitis was improved. From November 19, 1935, to December 21, 1935, he was given three treatments a week, at which time the itching and dermatitis had disappeared and treatment was discontinued. On February 7, 1936, the patient returned complaining of a re-

turn of the pruritis ani and itching from small areas of dermatitis on both thighs. Treatment was resumed and continued for six weeks. Since that time, a period of over five years, there has been no return of the itching or skin condition.

I then treated several cases weekly at the Outpatient Department of the Buffalo General Hospital. While one treatment a week was beneficial, the dosage was inadequate to do justice to the oxygen. Dr. Harry C. Guess, proctologist of Buffalo, continued the investigation on his private patients and reports 80 per cent of cures in a series of over 250 cases.

Arterial Diseases of the Extremities

Pain in the hands and feet due to restricted circulation has in the majority of cases been relieved by the injection of oxygen. These include arteriosclerosis, Berger's disease, and Raynaud's disease. Gangrenous areas have healed and probably amputation has been avoided in 3 cases. The following case is an example.

A woman, aged 76, with hypertension and arteriosclerosis, began to have cold and painful feet in July, 1937. She was treated with an alternating positive and negative apparatus without any relief. When the subcutaneous oxygen treatment was begun on February 5, 1938, the distal half of the second toe on the right foot was gangrenous and the other half was cyanotic. Blood pressure was 210/86. Three injections of oxygen were given weekly until April 24, 1938, at which time the protruding bone of the toe was nipped off under nitrous oxide-oxygen anesthesia. As the blood supply to the remaining part of the toe was good and as there was no more pain, the oxygen treatments were discontinued. The toe healed and the patient has had no pain or gangrenous areas since—a period of over three years.

There was 1 case of beginning gangrene of the feet with severe pain which, after four injections of oxygen, was not benefited. This was a man, aged 84, with marked arteriosclerosis. He died a few days later of cerebral hemorrhage.

Two patients with diabetic gangrene were treated for a month without results.

In cases of Berger's disease and Raynaud's disease when there is no marked edema, the patient can be relieved of pain and numbness to a great extent and the fingers or toes can be kept from sloughing. Cracking of the skin and some ulceration will occur in most cases in spite of three weekly injections of oxygen.

The following is an example of the ability of oxygen to check sloughing.

A man, aged 50, had had Raynaud's disease since 1924. In January 1937 the distal half of the right index finger was amputated at the Mayo Clinic. In May, 1941 the left index finger began to slough at the distal end and had progressed to about the same degree as had the right before the amputation. Subcutaneous oxygen was given for two months, three times weekly. The pain was relieved, the sloughing was checked, and the finger healed.

Angina Pectoris and Coronary Pain

The results in 10 cases of precordial and sub-sternal pain have been quite uniform. Usually, there is immediate relief as soon as the oxygen is injected into each side of the spine in the thoracic region, and in twenty minutes the pain is either almost or entirely gone. The freedom from pain lasts from one to three days but can be brought on by overexertion or emotional upset. In 4 of these cases the diagnosis of coronary occlusion was confirmed by electrocardiograms.

While relief of coronary pain can usually be obtained by the inhalation of 100 per cent oxygen, it is not so effective or so lasting as with subcutaneous oxygen. Occasionally, a patient will be little, if any, benefited by the inhalation of 100 per cent oxygen. The following is an example.

A man, aged 43, had severe sub-sternal and precordial pain, which was diagnosed by a competent heart specialist as due to coronary thrombosis. He was put to bed and 100 per cent oxygen therapy by inhalation was instituted. In spite of the oxygen, which was given continuously for the first twelve hours and thereafter twenty minutes each hour for three days, the pain, while somewhat less, was still severe. Large doses of morphine had also been given during this time. About 1,000 cc. of oxygen was then injected into the back, the procedure requiring about twenty minutes. As soon as the injection was completed the patient said that there was not enough pain left to mention. Two days later he refused to take another injection because he had been so comfortable and free from pain. During this time he had no inhalation oxygen.

The clinical results in the following case are interesting because of the definite pathology found in the heart at autopsy.

A man, aged 62, was known to suffer from hypertension and cardiac disease since 1933. Diagnosis after admission to the Buffalo General Hospital on July 17, 1939, was arteriosclerosis, hypertension, and coronary occlusion, confirmed by electrocardiograms. Since 1933 he had had many severe attacks of precordial pain and

dyspnea, sometimes lasting for many hours. After discharge from the hospital on July 29, 1939, the pain continued to be severe and prolonged. Some relief was obtained by nitroglycerine, but there was no relief from irradiation of adrenals. On February 1, 1941, the patient was referred to me for treatment at the Outpatient Department, he reported only once a week. The following notations are taken from the patient's chart "February 8, 1941—had no pain for three days after first treatment except on sudden exertion or when walking rapidly. Appetite has improved and sleeps better. February 15, 1941—an hour after last treatment had pain for about four hours but since then has been free not only from pain but also precordial distress for long intervals. February 22, 1941—had a comfortable week with no sharp pain but some precordial ache on exertion. March 1, 1941—no pain for three days following last treatment and says he feels several years younger." During the next two weeks he was given two injections a week.

"March 5, 1941—feels better generally. No pain in chest until this morning. March 8, 1941—no pain since last oxygen treatment until today after walking from his home to the hospital, a distance of over half a mile. March 12, 1941—was free from pain for twenty-four hours following last treatment. March 15, 1941—no sharp pain since last treatment. March 22, 1941—has taken only four nitroglycerine tablets during past week for occasional pain. March 29, 1941—felt good the past week. Took only one nitroglycerine tablet which was this morning. Has taken long walks without pain or dyspnea."

He died suddenly on April 8, 1941, ten days after the last oxygen injection.

Autopsy Report.—Distinct concentric myocardial hypertrophy of the left ventricle. Marked arteriosclerotic changes of the coronary arteries, particularly the left circumflex and the right marginal branches, which do not admit a probe. No recent thrombus discovered. Plum-size Rokitanaky aneurysm on the posterior wall of the left ventricle with almost complete fibrous replacement of the myocardium at this point. On section, distinct myocardial fibrosis in septal wall.

Nephritis

The beneficial results in 3 cases of nephritis which coincided with the initiation of subcutaneous oxygen injected in the back is encouraging and is reported at this time with the idea of stimulating further investigation. Two of the cases were chronic and 1 was acute.

The acute case was a woman, aged 48, and the glomerulonephritis was a complicating factor of a recent pneumonia. When subcutaneous oxygen therapy was begun on February 20, 1936, the blood pressures were 165/90 and there

was 4 plus albumin in the urine. The injections were given daily for the first two weeks and every other day for the third. The treatment was then discontinued since the patient had almost entirely recovered. The blood pressures were 110/64 and there was merely a faint trace of albumin in the urine. Her general condition improved remarkably during this time and she left the hospital a few days later. A recent report from her physician is that there has been no return of the nephritis—a period of over five years.

The second case was a man, aged 49, who had been hypertensive and had suffered from chronic nephritis for years. He had an acute exacerbation and became delirious. His urine was loaded with albumin and casts. Following the first injection of oxygen in the back, the delirium began to subside and in a few days disappeared, a corresponding improvement apparently took place in the kidneys as the albumin and casts were decreased. Daily injections were given for two weeks. The patient enjoyed his former usual health for a period of two years, when he suffered another acute exacerbation of the chronic nephritis. Subcutaneous oxygen plus inhalation oxygen at this time proved ineffectual and the patient died.

The third case was a girl, aged 17, who entered the hospital on January 9, 1941. The diagnosis was chronic glomerulonephritis and malignant hypertension of four years' duration. The patient was confined to bed and was mentally apathetic. There had been a gradual rise in the blood urea nitrogen. On January 28, 1941, it was 97 mg., on February 1, 1941, it had risen to 125 mg. After the institution of subcutaneous oxygen therapy the readings were as follows: 102, 81, 74, 85, 91, 133, 145, 148, 158 and 197 on April 8, 1941, when the patient died. The day following the first injection of oxygen the patient's mental condition improved, she had a better appetite and was up and about the ward for several days until the urea nitrogen began to mount. The improvement in her condition continued during the time she regularly received the injections. There was a period of eight days preceding the sharp rise of the urea nitrogen from 91 to 133 during which no injections of oxygen were given and, subsequently, they were ineffectual.

Dyspnea

Cardiac dyspnea, when not too severe, can usually be controlled by three injections of oxygen a week. With some, daily treatment may be required and, in cases of marked dyspnea with a drop in blood pressures due to left-sided heart failure such as occurs after coronary thrombosis, two daily injections may be necessary together with the continuous inhalation of 100 per cent oxygen. The subcutaneous oxygen in these cases will nearly all

be absorbed after twelve hours so that another injection is indicated

The dyspnea due to fibrous changes in the lungs or to emphysema can usually be relieved by the injection of oxygen in the back.

In asthma the oxygen is usually effective after the first injection, but there have been some failures and prolonged treatment may be necessary. Two patients were treated for a month with inhalation and subcutaneous oxygen without effect, but these are the exceptions.

Fatigue

Cases of chronic fatigue due to cardiac disease, low or high blood pressures, or the aftermath of influenza are greatly benefited by the injection of oxygen in the back. The patients feel refreshed on awakening in the morning and their endurance is increased.

Insomnia

Patients suffering from insomnia associated with heart disease, hypertension, or nervous exhaustion have been benefited by the injection of oxygen in the back. The patient usually sleeps well after the first treatment so that hypnotics can often be dispensed with. Once the habit of sleep has been established it may be possible to discontinue the oxygen injections.

A woman, aged 61, had been confined to bed for over a year with congestive heart failure. For ten months she had inhaled 100 per cent oxygen for from four to eight hours a day but was unable to sleep except for short intervals and was troubled with frequent nightmares. Following the first injection of oxygen in the back, she had eight hours of good sleep free from distressing dreams. Her ability to sleep well continued until the time of her death four months later, although the oxygen injections were discontinued after the first month, during which fourteen were given.

Chronic Arthritis

The results in the treatment of chronic arthritis have been variable and in some cases no benefit was obtained after from one to three months' treatment. However, the majority of cases were distinctly benefited both as to relief of pain and increased function. Several months or a year may be required to get the maximum results in these cases.

Apparatus

I prefer to use as light an apparatus as possible so it can be easily transported. It

consists of a "B" cylinder of oxygen, a yoke with needle reducing valve sold by the E-K Medical Gas Company, Bloomfield, New Jersey, a 5-foot rubber tubing to one end of which is attached the barrel of a 2-cc syringe, and 26-gage sterile needles, $\frac{3}{8}$ inch in length. In the office, "D" size oxygen cylinders are used, when empty, the cylinders are refilled from the large Linde Air Products Company cylinders to a pressure of about 1,200 pounds, for the needle valve works better when this pressure is not exceeded.

The Ohio Chemical Company, Cleveland, Ohio, has a reducing gage that indicates tank pressure and the pressure released into the tubing. This is more expensive and is not so easily transported because of its weight and size.

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Reducing valves or gages may also be purchased from the Cheney Chemical Company, Cleveland, McKesson Technical Appliance Company, Toledo, and the Forreger Company, New York City.

Technic

The best way for anyone contemplating giving oxygen subcutaneously is to practice first on himself. He will then get first-hand information as to how the needle can be inserted with the least pain and how much tension in the tissues will be required before it becomes painful.

The author selects a spot where there are no veins and swabs it over with tincture of iodine. The skin is then pinched tightly and the needle inserted quickly at right angles, usually with the oxygen flowing through the needle. If the oxygen is seen distending the tissues the needle is not in a vein. One should be constantly on the alert, however, since the needle may enter a vein with even slight movement. If several punctures are to be made, as in the back or extremities, the needles are inserted and the oxygen is injected in rotation through the needles. With this method less manipulation is required to spread the oxygen and should the needle get into a vein less oxygen is likely to enter it than if only one needle is used. If blood should be

seen dripping from one of the needles, it does not necessarily mean that oxygen has entered a blood vessel, as the needle may have been caused to enter a vein just as the tubing was being disconnected. If one listens closely, a slight crackling sound will usually be heard as the oxygen spreads in the subcutaneous tissues. When it enters a vein there is a gurgling or a hissing sound which may not be heard because of outside noises.

If the oxygen is injected merely into the region to be treated, it will spread and only a thin layer will be left over the affected area. In order to avoid this the areas above and below must also be filled. For example, in the treatment of a knee the thigh and leg must also be filled. The patient is instructed to rub the oxygen from the leg and thigh toward the knee two or three times on the following day.

In a treatment of a lesion in the foot the needle is inserted above the ankle, and after the leg is filled the oxygen is forced into the foot by compression above the needle. This is usually accomplished with the free hand after the needle has been connected.

If possible it is better not to insert needles in the soles of the feet or palms of the hand since these areas are sensitive.

When a foot is being filled with oxygen there is usually some pain as the oxygen passes over the arch, especially for the first time.

Reactions

The local reactions following the first injections of oxygen vary. There may or may not be any soreness the following day, but the patients are told of this possibility, especially when the oxygen has been injected into the arms or back.

In treating lesions in the head the oxygen should be prevented from entering the ear since earache may result, and when the eyelids are filled with oxygen, although not painful, it obscures vision. When the neck is filled with oxygen, especially for the first time, there is pain on swallowing and a raw sensation in the chest which the patient may diagnose as a chest cold. Sometimes the injection of oxygen in the arms will be painful during

the first night, but usually pain in this region will be immediately relieved and the patients will have a good night's sleep.

While the effects of injecting oxygen into the blood stream are disagreeable, they are not usually alarming unless a large amount has been injected. As a rule there is a dry cough, dyspnea, and a raw sensation in the chest which lasts for about twenty minutes. During this time the face is either flushed or pale and the pulse is slower than normal. These symptoms are overcome more quickly by the inhalation of 100 per cent oxygen.

Conclusions

1 The control of pain and discomfort, either partial or complete, by the subcutaneous injection of oxygen has usually been found possible in the following conditions: acute inflammatory conditions such as arthritis, myositis and neuritis, arterial diseases of the extremities, pruritis ani, coronary thrombosis, dyspnea, chronic fatigue, insomnia, and chronic arthritis.

2 The best results are obtained only when the oxygen is either injected into, or in close proximity to, the pathology. This rule is imperative in most instances.

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EXPLAINS A WORLD OF TROUBLE

Teacher "Wilham, what are the two genders?"

Wilham "Masculine and feminine. The feminine are divided into frigid and torrid, and the masculine into temperate and intemperate."

—Southern Pharm J

THEY'RE WARDING OFF MORE 'N MORE

Gladys "The doctors now say that low-neck dresses help women ward off colds and pneumonia."

Dunocan "Well, I was at a swell restaurant last night where all the girls seemed to be trying to ward off lumbago as well."

—Pathfinder

be absorbed after twelve hours so that another injection is indicated

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stool shows considerable quantities of undigested fats—also proteins and starches. Examination of the duodenal contents shows a definite reduction in pancreatic enzymes. Quantitative determination of the lipase and amylase in the blood is an aid in diagnosis.

Tumors of the pancreas may be either cystic or solid. As a rule, cystic tumors give rise to no symptoms unless they become large and interfere with the function of the surrounding structures. Solid tumors of the pancreas are usually malignant and more commonly involve the head of the organ, rapidly extending so as to involve the common bile duct and the regional lymph nodes.

There is no syndrome that is absolutely characteristic of carcinoma of the head of the pancreas. Significant early symptoms are gastrointestinal dysfunction of a nondescript type, loss of weight, progressive anemia, increased nervousness, and a feeling of indefinite apprehension. These symptoms are soon followed by a steadily increasing jaundice. It is often stated that painless jaundice associated with a palpable gallbladder is diagnostic of carcinoma of the head of the pancreas. In actual practice this is often found not to be so. In many cases pain is present and the gallbladder is not always palpable. In the early stages one cannot, as a rule, palpate a tumor mass. The first diagnostic evidence of its presence may be obtained from x-ray examination, which shows a more or less characteristic distortion of the second portion of the duodenum.

Pancreatic calculi, though not common, are not so unusual as formerly supposed. They result apparently from stasis of pancreatic secretion and are soon associated with a chronic pancreatitis. It is difficult to differentiate an attack of pain due to pancreatic lithiasis from one due to gallstones. Examination by means of the x-ray offers the best chance for preoperative diagnosis in these cases. I have purposely dwelt at some length on pancreatic lesions, since they do not come to one's mind so readily as do diseases of the gallbladder or upper part of the gastrointestinal tract.

In acute cholecystitis the inflammatory process may be mild or severe with suppuration. In the mild cases the patient complains of chilly sensations, headache, nausea, at times vomiting, and little or no pain, though there may be a sense of epigastric distress which may be relieved temporarily by vomiting. There is but a moderate elevation of temperature and, at first, some increase of the pulse rate.

During the early stages there may be definite tenderness over the gallbladder region. Any jaundice that develops appears slowly and also fades slowly.

The suppurative type of cholecystitis is accompanied by a severe chill, variable pain, and tenderness. There is a prompt rise in the temperature and pulse rate. Jaundice is apt to develop within forty-eight hours. When chills, fever, and marked jaundice continuing for several days with repeated colicky attacks of pain occur, one must suspect the presence of a stone in the common duct. The abdomen is distended, there is unmistakable muscular rigidity and marked tenderness in the region of the gallbladder, and the liver itself may be enlarged and tender. Perforation of the gallbladder should be considered if there is marked fluctuation of the temperature with a tendency to keep rising, an increase of the pulse rate, diffuse abdominal distention, cyanosis, and intermittent jerky breathing. For a short period following perforation, the patient often experiences some relief from abdominal discomfort, but the interval is brief and not quite so characteristic as that following perforation of a peptic ulcer. Symptoms accompanying perforation, as is true in perforations of other hollow viscera, depend to a considerable degree on whether or not the process is rapidly walled off.

The symptoms of gallbladder colic are fairly well understood and depend on the size, shape, location, and activity of the stone. Our chief interest lies in the necessity of differentiating this type of pain from that of coronary thrombosis, acute pleurisy, and various conditions occurring in the upper part of the abdomen, including pancreatitis (which has already been discussed) and other syndromes that we will discuss later.

In suppurative cholangitis there is an involvement not only of the extrahepatic ducts but also of the intrahepatic radicles and the liver parenchyma. An associated cholelithiasis is usually present. Frequently, the first symptom is a colic. There is considerable prostration, and jaundice appears within a few days and varies in intensity from day to day. The liver becomes enlarged and tender. When the cholangitis is secondary to a cholecystic infection, the gallbladder becomes tender and at times palpable.

Suppurative cholangitis must be differentiated from pyelophlebitis, which frequently follows an acute intra-abdominal infection, such as appendicitis. In pyelophlebitis the jaundice appears late, if at all, and is not inter-

DIFFERENTIAL DIAGNOSIS OF CONDITIONS IN THE UPPER PART OF THE ABDOMEN

MAXIMILIAN A. RAMIREZ, M D, New York City

CHARACTERISTIC pains often hold the key to a correct diagnosis of various conditions in the upper part of the abdomen. They must be evaluated in conjunction with other fundamental data such as the patient's threshold of pain perception, periodicity and degree of occurrence, duration, location, radiation, etc. Various hypotheses have been advanced regarding the anatomic and physiologic concepts of pain production, as well as the grouping of patients in relation to their sensitiveness and reactivity to pain. From a practical clinical standpoint one may distinguish between pain of autonomic and that of somatic cerebrospinal origin. Autonomic or splanchnic or visceral pain results from stimuli traveling along the splanchnic nerves, which constitute the main supply of the gastrointestinal tract, gallbladder, liver, etc. Somatic or parietal pain results from stimuli traveling along afferent somatic nerves supplying the parietal peritoneum.

Visceral pain is obscure, lacks precise location, is usually deep-seated, and may be spasmodic or continuous. Somatic pain, on the other hand, is more apt to be stabbing in character, more superficial, and usually more continuous. It is usually associated with tenderness and rigidity of the abdominal wall. Splanchnic pain results from tension on afferent nerve endings in the muscle wall of the hollow viscera. A good example is the pain seen in early intestinal obstruction, in which the pain may remain unlocalized and abdominal tenderness and rigidity may be absent. Somatic pain is the familiar type encountered in inflammatory lesions involving the parietal peritoneum. This concept of pain is of great practical aid in distinguishing between lesions that give rise to distention of a hollow viscus with exaggerated peristalsis and those that produce parietal peritoneal irritations.

As in all other fields of differential diagnosis, it is absolutely indispensable to obtain a thorough history. This is fundamental. Nevertheless, it is one of the steps most frequently hurried or neglected in making a diagnosis.

In discussing bedside differential diagnosis of syndromes of the upper part of the abdomen, it is my plan to devote special attention to the disorders of the pancreas because pancreatic disease is so often associated with lesions of the stomach, duodenum, liver, and bile passages, and rarely exists as an uncomplicated condition. Besides, this is one organ that is often overlooked. The pancreas lies behind the peritoneum in close contact with two important nerve structures—the celiac plexus and the semilunar ganglia—and is part of the posterior wall of the lesser peritoneal cavity. Acute inflammation of the pancreas is frequently transmitted to the overlying peritoneum, causing a more or less localized peritonitis. Excluding diabetes mellitus, which may be considered as originating in the pancreas, there are comparatively few diseases of the pancreas which are of clinical importance. Acute pancreatic necrosis should be thought of in patients complaining from sudden, severe, agonizing epigastric pain, frequently radiating to the left lumbar region. This left lumbar pain is of special significance in correct diagnosis, as is also tenderness in the epigastrium corresponding to the position of the pancreas and deep-seated tenderness in the left loin. There is profound collapse, rapid feeble heart action, nausea, vomiting, and a peculiar ashy cyanosis. Usually, there is a great deal of muscular rigidity. Occasionally, glycosuria occurs, and examination of the blood and urine may reveal a marked increase in diastase.

Chronic pancreatitis may result from an acute pancreatic necrosis of mild degree or from pancreatic stasis due to calculi tumors, or fibrous tissue formation. The chief pathologic characteristic is an increase in interstitial connective tissue, with pressure upon, and replacement of, the gland parenchyma. Peripancreatitis is usually associated with a long-standing infection of the biliary tract. It also follows infection of the pancreatic lymphatics, secondary to inflammation of the duodenum or transverse colon.

The symptoms of chronic pancreatitis are obscure, not clear-cut, and closely simulate those of chronic cholecystitis. Patients complain of an indefinite epigastric discomfort, indigestion, and "gas." Examination of the

then down the course of the ureter to the bladder and, perhaps, the testicle. The severity of the pain is in a measure dependent on the size and shape of the stone. Larger calculi that form a mold of the entire pelvis of the kidney often give no sign of their presence and are detected only on radiographic examination.

In perinephric abscess there is frequently a previous history of boils or carbuncles. The onset may be sudden or insidious, depending on whether the condition is acute, subacute, or chronic. The chief diagnostic points are the pain and tenderness over the kidney. Tenderness is maximal in the costovertebral angle, and there is hyperesthesia of the abdominal muscles on the same side. A mass may or may not be palpable in the loin. The abscess may affect and compress the neighboring viscera, causing pleurisy, jaundice, ascites, or edema of the leg. There may be rigors and an intermittent fever of the septic type. The x-ray examination is often of great diagnostic value. It shows an obliteration of the marginal outline of the psoas muscle and a slight scoliosis of the spine, with convexity toward the normal side.

Thrombosis of the splenic vein and infarction of the spleen cause severe acute pain in the upper part of the abdomen. Infarction of the spleen occurs much more often than is clinically recognized. The main symptom is localized pain with tenderness over the somewhat enlarged organ, especially when perisplenitis develops. However, in my experience with splenic infarction, the pain first manifests itself in the epigastrium and later becomes localized over the spleen itself.

Tumors of the spleen, although rare, are also more common than is generally believed. The steadily growing mass may produce pain in the left hypochondrium and may be attended by rapidly developing anemia and emaciation.

Dissecting aneurysm of the aorta, although of comparatively frequent occurrence, is an important and serious condition that must be kept in mind. The patients are more often men than women, usually between the ages of 40 and 70, and the large majority have hypertension. The onset is sudden and not uncommonly brought on by physical exertion, anger, or excitement. The pain is excruciating, being described as tearing, and reaches its maximum intensity very quickly. The site of onset of the pain varies, depending upon the site of the rupture. The pain

quickly spreads from the chest over a wide area, usually downward toward the lower part of the abdomen and legs, but almost never into the arms. Despite the abdominal distribution of the pain, rigidity is usually absent. With the pain there is shock, collapse, and loss of power in the legs, and the circulation in the lower extremities becomes impaired. There is moderate fever and leukocytosis, but the blood pressure is maintained. As a rule, but not always, death occurs rapidly.

An analysis of pain in the upper part of the abdomen would be incomplete without mention of pain referred from outside the abdominal cavity. In contrast to the extreme rigidity of the abdominal muscles in the conditions already described, the stiffness that may occur in thoracic lesions usually is more superficial and more readily overcome. There is little or no tenderness, and relief is often obtained from a degree of pressure that would be unbearable if the abdomen were affected.

Coronary artery disease may give rise to chronic intermittent gastric distress. A careful history is of the greatest assistance. Myocardial infarction is also apt to be confused with an abdominal episode. Often, the pain is in the epigastrium or right upper quadrant and may be associated with nausea, vomiting, and fever. However, there is less or no rigidity or tenderness.

The possibility of coronary occlusion should always be considered in middle-aged or elderly individuals with acute pain in the upper part of the abdomen. Here, differential diagnosis is facilitated by the sudden onset with shock, fall in blood pressure, pulse changes, leukocytosis, increased sedimentation rate, and the development of electrocardiographic changes.

The visceral crises of syphilis may also simulate the pain of organic abdominal disease. Most frequently encountered is the gastric crisis, characterized by recurrent abdominal distress, vomiting, and pain. There is no relationship to the ingestion of food, and the pain may persist for hours or days at a time. After the crisis is past, the patient feels comparatively well and has no gastrointestinal symptoms. Changes in the pupillary and patellar reflexes, as well as other neurologic signs, and a positive serology furnish a key to the correct diagnosis in these cases. It must always be remembered that abdominal distress in patients suffering from cerebrospinal syphilis may be due to ordinary peptic ulcers.

Other possibilities not to be overlooked are

mittent Also, the spleen is more apt to be enlarged

Subphrenic abscess also must be differentiated clinically from a suppurative cholangitis The onset may be sudden with severe epigastric pain, vomiting, and prostration A little later, signs of infection become evident One may find high dullness in the axilla accompanied by marked percussion tenderness An indefinite swelling may appear in the epigastrium The greater number of cases of subphrenic abscess are encountered following suppurative conditions in the abdomen for which operation has been performed A general bacterial infection may give rise to the condition Roentgenologic examination is of great value

Mesenteric thrombosis is fortunately not a common condition, neither is it so rare that it can be completely ignored Any resulting peritonitis is secondary to changes in the intestinal wall supplied by the thrombosed vessel Disorders that favor the blocking of vessels by emboli or thrombi are potential etiologic factors The onset of symptoms is abrupt, with severe generalized colicky pains There is little or no fever, in fact, the temperature may even be subnormal There is marked shock, nausea, and vomiting, as well as signs of peritoneal irritation, the vomitus may be hemorrhagic Some patients have diarrhea with bloody stools, others have no diarrhea but develop a paralytic ileus

Mesenteric thrombosis is most often confused with acute intestinal obstruction, especially so in the presence of distention and constipation It is to be remembered that spasm of a mesenteric artery has been described as giving the same signs as an occlusion Such visceral spasms are more commonly found in patients with generalized arteriosclerosis or hypertension, and the pain may be relieved by vasodilators

Gastric and duodenal ulcers give a fairly characteristic history Perforation of gastric ulcers usually causes localized tenderness in the epigastrium, in the midline, or a little to the left The tenderness is less diffuse than that seen in pancreatitis In considering perforation of peptic ulcers, it is well to remember that an acute perforation may be accompanied by the escape of a considerable amount of gastric or duodenal contents into the peritoneal cavity and that a more chronic type of perforation may result in slow oozing, permitting a thorough and competent protective walling-off

The perforation is usually quite acute, and

in only 5 per cent of the cases does it occur slowly enough to result in a localized limited peritonitis In the so-called chronic form of perforation the ulcer is usually located in the posterior wall, and perigastric abscess formation may result It must not be overlooked that a posterior perforation of the stomach or duodenum may initiate an acute pancreatitis In the acute form of perforation the ulcer is usually located on the anterior wall, and the onset of pain is sudden and extremely severe, well localized at first but soon becoming diffuse With the possible exception of a pancreatic necrosis, it is doubtful whether the pain of any other disorder exceeds that of a perforated gastric ulcer occurring at the height of digestion The abdomen is retracted and assumes a boardlike rigidity Respiration is shallow and, at times, painful Vomiting may occur and the temperature may be subnormal An x-ray examination of the abdomen often shows an accumulation of gas between the liver and diaphragm and, perhaps, also in the general peritoneal cavity

In acute high intestinal obstruction there is an abrupt onset, with intense colicky pain Vomiting is always present and soon takes on a fecal character Collapse occurs early and is more intense the higher the obstruction The pain is usually referred to the middle of the abdomen, but exact localization has no significance In the early stages of acute obstruction the abdomen is not sensitive to pressure Later, when peritonitis develops, pressure tenderness is elicited Distention of the abdomen occurs early and is progressive in character Acute pancreatitis may simulate intestinal obstruction in that it is attended by nausea, vomiting, constipation, and severe abdominal pain But in pancreatic inflammation, the vomiting is usually not fecal and there is early local tenderness

In acute appendicitis, which may be confused with almost any other acute disorder of the abdomen, the pain syndrome has considerable diagnostic significance Appendiceal pain is, in the majority of cases, first described by the patient as a diffuse, deep-seated, epigastric soreness However, in most cases the pain becomes localized in the right lower quadrant in a comparatively short time Nausea, vomiting, fever, and leukocytosis may all be absent at the outset, but the characteristic pain syndrome is a significant sign.

In nephrolithiasis the pain, known as renal colic, is sudden and severe It is an agonizing pain referred to the region of the kidney At first, it radiates across the abdomen and

tient is placed in the Trendelenburg position, a small hernia may escape detection

Hepatic carcinoma, primary or secondary, presents anorexia, loss of weight and strength, vague digestive symptoms, and advancing cachexia. Jaundice, as ascites, occurs in about one-half the cases. Pain may or may not exist, but there is always a sense of heaviness. The liver is enlarged and often tender and frequently presents an irregular surface.

Periarthritis nodosa presents a multiplicity of symptomatology. The principal vessels affected are those of the genitourinary tract (mesenteric and celiac axis), kidney, and heart.

Progressive weight and strength loss, joint and muscle pain, general malaise, progressive anemia, leukocytosis, eosinophilia—as high as 79 per cent having been reported—hypertension, hypertensive arteriosclerotic fundi changes, renal involvement, colicky abdominal pain, and at times the finding of palpable nodules suggest the classic picture, which may be established by biopsy.

Localized peritonitis of the upper part of the abdomen, especially that of gonorrheal origin in the female, may be strongly suspected by history and residual adnexal evidence.

Pancreatic adenoma should be well understood, for a moderate number of these patients is admitted to mental hospitals because of their neurotic, psychotic, or convulsive states.

Bizarre psychic symptoms or convulsions, often associated with digestive symptoms after a period of fasting—as in the morning before breakfast or following vigorous exercise—associated with hypoglycemia commonly below 50 mg per hundred cubic centimeters of blood and rarely as low as 20, with a sugar tolerance curve of the diabetic plateau type but with lower absolute values, are characteristic signs. Speedy recovery from the attack follows intravenous glucose administration. An epinephrine injection during seizure also gives relief and recovery by mobilizing the liver glycogen. The insulin tolerance test is a valuable aid in the recognition of this condition, for, if 5 units of insulin be given intravenously after twelve hours of fasting, two hours later there is no tendency for the blood sugar to reach a normal level if adenoma of the islets is present. Amnesia for the attack is the rule.

Intestinal obstruction is suspected by evidence of colicky pain, progressively increasing during hours, in contradistinction to the severe sudden epigastric pain, at times to the left of the dorsal region, of pancreatitis. Vomiting, eventually fecal, and, very rarely, icterus are common findings. The absence of bile in the vomitus favors pancreatitis and, although active peristal-

sis is common in obstruction, it is absent in pancreatitis.

Obstruction is more common in the young (intussusception, Meckel's diverticulum, appendicitis) and in the aged (carcinoma, strangulated hernia, volvulus), while pancreatitis is more common in men of later middle life. In obstruction, a tumor mass may at times be felt.

Acute pancreatitis, hemorrhagic or nonhemorrhagic, is uncommon before 40 and usually occurs in fat people. There may be mild attacks before the eventual severe one.

A typical attack is characterized by excruciating pain, extending to one or both loins, and profound shock (cold extremities, sweat, weak pulse, subnormal temperature). Reflex vomiting is usually present. Constant epigastric tenderness, with an occasional point of tenderness in the left costovertebral angle close to which area lies the tail of the pancreas, is highly suggestive. Abdominal rigidity may be extreme or, at times, lacking. Jaundice may occur from compression of the common bile duct by the swollen head of the pancreas, but this finding is variable, and even obstructive vomiting may rarely occur from pressure of the swollen pancreatic head upon the duodenum.

If the patient survives the attack ecchymoses in one or both loins, due to extravasated blood having traveled along the retroperitoneal tissue planes, may occur as a greenish yellow or purplish stain in the loins, rarely have the ecchymoses occurred about the navel. This symptom can only appear two or three days following the attack but, when present, is pathognomonic.

A valuable diagnostic aid is the determination of blood amylase. A high blood amylase at the time of an acute attack is strong evidence of pancreatitis, while the absence of such elevation points to an extrapancreatic lesion. Following the acute attack amylase concentration decreases rapidly.

Increased amylase values may occur in some patients suffering from gastritis, gastric and duodenal ulcers, cholecystitis, and other diseases affecting organs in close proximity to the pancreas, but in these conditions the high levels—possibly 3,000 units as against normal values of between 70 and 200 units—are not obtained.

Disease of the appendix or gallbladder can usually be excluded by the eventual lack of tenderness over those areas.

I regret that extreme limitation of time not only prohibits consideration of additional causes of disturbances in the upper part of the abdomen but also precludes more than this superficial consideration of the more nearly characteristic symptoms of the subjects discussed.

AND RALPH KNEW

The reward for a thing well done is to have done it.

—R. W. Emerson

HIS FIGURES LIE

The statistician deals with averages, the physician, with individuals.

—Fellerman

intoxication by foods and chemicals and food allergy. A history of dietary indiscretion followed by nausea, vomiting, and diarrhea is, of course, suggestive of intoxication. Chemical poisoning produced by lead or arsenic may also cause generalized abdominal distress. The gums should always be carefully examined for a lead line and the blood for basophilic stippling, and a quantitative determination of the metal itself in the blood and urine should be made. An excess of porphyrin in the urine is often found in lead poisoning.

At times, food sensitivity can produce pain closely resembling that of organic abdominal lesions. Aids to correct diagnosis are a history of known allergic phenomena, relief by the administration of epinephrine, and the presence of eosinophils in the blood.

In the short time at my disposal, I have attempted to correlate some of the more commonly encountered disorders responsible for pain in the upper part of the abdomen. Frequently, I have interpolated the differentiation of the various conditions in the upper part of the abdomen from intrinsic pancreatic lesions, because, as I stated before, I believe that this organ is too often ignored in the clinical diagnosis of diseases of this section. The correct interpretation of pain in the upper part of the abdomen plays an important part in arriving at a correct differential diagnosis.

Discussion

Dr. Henry Craig Fleming, New York City— I compliment Dr. Ramirez upon his enlightening treatment of so vast a subject in the limited period of time allotted for his paper.

The confusing similarity of many dissimilar entities exacts the most cautious consideration of differential criteria. But as this discussion must be limited to a short period, I shall refer but briefly to the more salient symptoms and signs of several conditions that may be confused.

Basal pneumonia, in spite of the downward transmission of pain by way of the intercostal paths and the occasional associated digestive symptoms—the “bilious” pneumonia of bygone years—can usually be recognized by an onset with chill, fever, a “stitch” in the side, cough, often hemoptysis, sputum findings, x-ray, and the absence of deep-seated tenderness over the area of referred pain.

Coronary disease with symptoms expressed to the abdomen may be suspected by persistent, intense substernal pain, possibly preceded by months or years of angina, elevated temperature, ESR and leukocytes, fall in blood pressure, and often, but not invariably, electrocardiographic changes within a few hours. In

this condition, too, deep-seated tenderness is absent.

The crises of tabes should be suspected by pupillary changes, absence of knee jerks, serologic findings, and absence of digestive symptoms following the attack.

The congested liver of congestive cardiac failure need rarely confuse if the history and associated cardiac and pulmonary findings with extremity edema is considered.

Gallbladder disease commonly follows a long history of digestive disturbance, especially gaseous indigestion, “bloating” after meals, and intolerance to fats. The pain varies in intensity and may be felt in the epigastrium and right upper quadrant with radiation toward the right scapula, but tenderness is eventually localized in the right upper quadrant, and x-ray and duodenal drainage may clarify the picture.

Abrupt perforation of gastric or duodenal ulcer is usually agonizing and may be radiated to one or both shoulders, contingent upon the degree of impingement upon the phrenic filaments in the diaphragm by the irritating fluid. Temperature and pulse rise and the rigid abdomen, which may contain not only fluid but also air, may obliterate the normal outline of the liver. In this condition the patient often vomits early but rarely does so again, thus creating an important point of distinction between perforation and obstruction of the bowel. Great thirst, too, is common in perforation—the patient will often drink large quantities in spite of nausea.

Mesenteric embolism and thrombosis is commonly preceded by vegetative endocarditis, phlebitis, or abdominal infection. It commonly occurs in old people with arteriosclerosis and may be suspected in conditions that favor stasis in the portal system. The condition commonly occurs by severe colicky generalized pain. Vomiting occurs in about one-half of the cases and, as a result of infarction, blood may be present in the stool. Leukocytosis and collapse are common.

Diaphragmatic hernia symptoms are often complex because of various structures involved. Esophageal diaphragmatic hernias are usually congenital, but their symptoms may begin at birth or in later life.

Epigastric distress, soon after a meal or following violent exertion, relieved by belching or vomiting should arouse suspicion. But either or both may be prevented by spasm of the diaphragm or cardia as a result of pressure of the herniated portion of the stomach upon the esophagus. And diaphragmatic spasm, by phrenic pressure, may radiate pain to the left shoulder and arm.

In this condition there may be many weeks of freedom from symptoms between spasms. Hemorrhage may occur from membranous erosion. The x-ray is an essential confirmatory procedure of the condition, but, unless the pa-

wandering cells" They showed that these ducts were preformed structures by their constant epithelial lining and *not* incidental tracts caused by infection They demonstrated in every case well-developed ducts that extended from the Morgagni crypts into the submucosa and sometimes into the internal sphincter muscle These same structures were found microscopically in human newborns and even embryos Occasionally, we have been able to demonstrate clearly at the operating table the mouths of these anal ducts macroscopically With good muscular relaxation by turning back the edges of the valves, the mouths of these ducts are frequently seen That they secrete a mucinous lubricant is also occasionally well demonstrated, particularly where there is hypertrophy of the ducts and hypersecretion without infection This is more frequently seen anterior in the anal canal and may be an attempt on the part of nature to assist the flexible and distensible soft tissues of the canal to help absorb the force of the stool from the angulated rectum as it is thrown forward by the posterior well-developed sphincters

The importance of this revealing research is seen comparatively where a small anal duct abscess has occurred In one of our own cases the infection remained localized to the duct until a cryptectomy, or rather a valvectomy, was performed, this incision being carried well outside The operation itself, however, did not take in sufficient field in depth and only served to seal the hitherto well-draining duct, with the result that after ten days the infection had burrowed down to Hilton's line, out between the external sphincter and fibers of the internal sphincter form an ischioanal abscess Further quoting from Drs Tucker and Hellwig "We regard the knowledge of these structures of great value in the understanding of the question why the anal canal is so frequently the seat of inflammatory processes The narrow often branching structures, excretory ducts, without protecting layers of secretion on its epithelial inner surface must be regarded as a natural incubator in case fecal material laden with bacteria finds its way into the opening of these ducts"

Dr Pope,⁴ of Chicago, further confirmed these findings and emphasized his belief that such a medium of infection may result in perianal vascular congestion with subsequent hemorrhoid formation. This may be true in part, but a certainty exists that daily usage of the anorectal canal, together with many cases of

obstipation, predisposes to trauma⁵ with consequent entrance of low-grade infection directly into the lymphatic tissue in the anorectal zone Weakening of the blood vessel walls with vascular stasis gradually contributes to hemorrhoid formation In our opinion no hemorrhoids removed can be found microscopically free from chronic inflammation Frequently in cryptitis, the adjoining papilla or papillae fall prey to infection, which seems to stimulate the papilla to overgrowth in an attempt to survive functionally These hypertrophied papillae are easily distinguishable (1) because of their situation, the base of which is always at the anorectal line, and (2) because of the general appearance, tusk-shaped with a comparatively broader base than apex, and a dirty gray color The size of a diseased papilla may vary from $\frac{1}{4}$ to 3 inches in length As a result of prolapse through the anal canal it will produce most agonizing pain while in the grasp of the spastic sphincters Upon reclining and relaxation of the musculature, the hypertrophied papilla may return to its interior position with instant relief for the patient

The symptoms of cryptitis are dependent directly upon the duration of the condition and the degree of extension of the inflammation to other associated portions of the anorectal zone, canal, and perianal and perirectal tissues It is infrequent to see a patient with an independent acute or chronic cryptitis We most frequently see the sequelae

In cryptitis, complaint is made of "throbbing in the rectum," a stinging pain on defecation, a fullness or pressure that is constant, or "soreness in the rectum" on sitting Many of these symptoms are common with other anorectal diseases, but by adequate examination they can be readily differentiated By careful palpation clockwise around the anorectal ring, a tender area may be encountered The patient may say "That is the spot," "that is the same feeling I get when my bowels move" Then by visual examination with a fenestrated speculum the field is studied The crypt is readily examined with a probe The amount and extent of inflammation, the effect on adjacent papillae, the presence of pus or internal fistulous openings, the fibrosis or hypertrophy of the valves, in some instances, visualization of the inflamed anal ducts, the association of the inflamed crypt with a chronic ulcer, the presence or absence of a connecting fistulous tract are determined

The diagnosis having been determined, the

CRYPTITIS—PERIANAL AND PERIRECTAL INFECTIONS

F LESLIE SULLIVAN, M D , F A C S , Scotia, New York

CRYPTITIS is an acute or chronic infection of the crypts of Morgagni with the pathologic process originating in the anal ducts opening into the crypts. It is important to have an intimate knowledge of the pertinent facts regarding the anorectum—its susceptibility to focal infection and subsequent pathologic changes particular to the region as a result of these infections. Pennington¹ stated that nearly 85 per cent of all proctologic diseases in or about the anus are caused by an antecedent infection in the crypts of Morgagni. Buie² emphatically writes "Therefore let it be understood that there never has been an anal fistula without a primary internal opening, that opening is always in the anal crypts." Further, Mentzer³ writes "that the crypt has been aptly called 'the biggest little thing in proctology'." Thus, it may be deduced that the essential nidus for nearly all the infectious diseases in the perianal and anorectal zone is a diseased crypt.

The anorectal line, dentate line, or pectinate line marks the union of the proctodeum and the hind gut. At this line the pouchlike rectum is purse-stringed and, because of a greater circumference than the anal canal, numerous mucosal folds are thrown up, known as the columns of Morgagni, intervening are the crypts of Morgagni.⁴ At the inferior end of these mucosal valleys are the anal valves, which consist of delicate thin layers of transitional stratified epithelium stretched from one column to another. Between the anal valves at the bases of these columns are the anal papillae or "fingers of the rectum." They are small irregularly placed "nubbins" of epithelium, usually about five to eight in number, in the total circumference of the anorectal line. These papilla-form projections contain pacinian corpuscles and as such have tactile sense. They acquaint the individual with the presence of gas or liquid or formed stool within the lowest third of the rectum. Below the anal rectal line this ectodermal lining is stratified squamous epithelium.⁵ The entire anal canal is held firmly closed by the tonic action of the anal musculature, the external and internal sphincters, and the puborectalis portions of the

levator ani inserted into the sphincters at Hilton's line—the White line.

The lymphatic drainage in disease of the valves is important. In the main, most of the drainage is caudal, by the inferior hemorrhoidal plexus. There is, however, some communication with the middle and superior hemorrhoidal plexuses, which accounts for the many submucosal abscesses seen following crypt infections. The highest percentage of infections have a tendency to drain externally from the anorectal zone by several routes which we shall discuss further on.

The rectum and anus also are highly vascular organs, and in general the anus to the anorectal line is bathed with blood by the inferior hemorrhoidal artery, a branch of the internal pudic, the rectum being fed by branches of the superior hemorrhoidal artery from the inferior mesenteric and the middle from the sacral artery.⁶

The venous drainage is similar and there is free communication between the (three) plexuses. So, here in this zone, there is an established communication with the portal system through the superior hemorrhoidal veins and with the inferior vena caval system through the middle and hemorrhoidal veins.

Drs. Tucker and Hellwig,⁷ of Wichita, Kansas, have presented some valuable research material as a result of their studies of the anal crypts. They have shown that the crypt itself is seldom involved but that the infection starts in the anal ducts except in g.c. cases where the crypt is always involved. In their article, "Histopathology of the Anal Crypt," read before the American Proctological Society in 1933, they presented the result of study of 331 hemorrhoids and 89 crypts removed by Dr. Tucker at St. Francis Hospital. I quote from their report: "Without exception, our specimens of cryptitis showed the pathologic process confined to the ducts which opened into the crypts of Morgagni. They were either simple tubular ducts or more complex branching structures which extended from the mucosa into the submucosa or muscular layer. In acute infections, the lumen of these ducts was filled with pus cells and the wall was infiltrated with neutrophile leucocytes. In subacute or chronic cases, the wall of these ducts was formed by dense fibrous tissue, infiltrated with lymphocytes, plasma cells, and

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, May 1 1941

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CRYPTITIS—PERIANAL AND PERIRECTAL INFECTIONS

F LESLIE SULLIVAN, M D , F A C S , Scotia, New York

CRYPTITIS is an acute or chronic infection of the crypts of Morgagni with the pathologic process originating in the anal ducts opening into the crypts. It is important to have an intimate knowledge of the pertinent facts regarding the anorectum—its susceptibility to focal infection and subsequent pathologic changes particular to the region as a result of these infections. Pennington¹ stated that nearly 85 per cent of all proctologic diseases in or about the anus are caused by an antecedent infection in the crypts of Morgagni. Buie² emphatically writes "Therefore let it be understood that there never has been an anal fistula without a primary internal opening, that opening is always in the anal crypts." Further, Mentzer³ writes "that the crypt has been aptly called 'the biggest little thing in proctology'." Thus, it may be deduced that the essential nidus for nearly all the infectious diseases in the perianal and anorectal zone is a diseased crypt.

The anorectal line, dentate line, or pectinate line marks the union of the proctodeum and the hind gut. At this line the pouchlike rectum is purse-stringed and, because of a greater circumference than the anal canal, numerous mucosal folds are thrown up, known as the columns of Morgagni, intervening are the crypts of Morgagni.⁴ At the inferior end of these mucosal valleys are the anal valves, which consist of delicate thin layers of transitional stratified epithelium stretched from one column to another. Between the anal valves at the bases of these columns are the anal papillae or "fingers of the rectum." They are small irregularly placed "nubbins" of epithelium, usually about five to eight in number, in the total circumference of the anorectal line. These papilla-form projections contain pacinian corpuscles and as such have tactile sense. They acquaint the individual with the presence of gas or liquid or formed stool within the lowest third of the rectum. Below the anal rectal line this ectodermal lining is stratified squamous epithelium.⁵ The entire anal canal is held firmly closed by the tonic action of the anal musculature, the external and internal sphincters, and the puborectalis portions of the

levator ani inserted into the sphincters at Hilton's line—the White line.

The lymphatic drainage in disease of the valves is important. In the main, most of the drainage is caudal, by the inferior hemorrhoidal plexus. There is, however, some communication with the middle and superior hemorrhoidal plexuses, which accounts for the many submucosal abscesses seen following crypt infections. The highest percentage of infections have a tendency to drain externally from the anorectal zone by several routes which we shall discuss further on.

The rectum and anus also are highly vascular organs, and in general the anus to the anorectal line is bathed with blood by the inferior hemorrhoidal artery, a branch of the internal pudic, the rectum being fed by branches of the superior hemorrhoidal artery from the inferior mesenteric and the middle from the sacral artery.⁶

The venous drainage is similar and *there is free communication* between the (three) plexuses. So, *here in this zone*, there is an established communication with the portal system through the superior hemorrhoidal veins and with the inferior vena caval system through the middle and hemorrhoidal veins.

Drs. Tucker and Hellwig,⁷ of Wichita, Kansas, have presented some valuable research material as a result of their studies of the anal crypts. They have shown that the crypt itself is seldom involved but that the infection starts in the anal ducts except in *g.c.* cases where the crypt is always involved. In their article, "Histopathology of the Anal Crypt," read before the American Proctological Society in 1933, they presented the result of study of 331 hemorrhoids and 89 crypts removed by Dr. Tucker at St. Francis Hospital. I quote from their report "Without exception, our specimens of cryptitis showed the pathologic process confined to the ducts which opened into the crypts of Morgagni. They were either simple tubular ducts or more complex branching structures which extended from the mucosa into the submucosa or muscular layer. In acute infections, the lumen of these ducts was filled with pus cells and the wall was infiltrated with neutrophile leucocytes. In subacute or chronic cases, the wall of these ducts was formed by dense fibrous tissue, infiltrated with lymphocytes, plasma cells, and

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crypts of Morgagni. Although this anorectal infection commonly described as cryptitis has been the subject of numerous reports by proctologists, it has not been accredited as being of major importance as a focus." He states, and correctly, that bacteria may pass from the anorectal zone *by the blood stream* to the liver, setting up a periportal hepatitis and cholecystitis, *by way of the lymphatics*, setting up an intrapelvic and intra-abdominal lymphangitis and lymphadenitis and, thence, by mingling of lymph and, by extension, infection of intra-abdominal organs and structures, *by way of the general circulation* to other remote structures through the following means (1) directly at the site of an anorectal infection through the middle or inferior hemorrhoidal veins, (2) by passing through the liver to the general circulation, (3) as lymph collected from the abdomen flowing through the thoracic duct and the left subclavian vein into the general blood stream.

Neurologic, genitourinary, gastrointestinal, and rheumatic symptoms are commonly caused by anorectal disease.^{16,17} Probably the most frequent is low back pain associated with sphincter spasm.¹⁸ Next are reflex gastric symptoms. These may occur not only in acute or chronic infection of the anorectum but also in infected new growths of the rectum. Anorectal disease plays an important role in the hepatic infections as hepatitis and gallbladder disease. Rheumatoid and other types of arthritic patients have shown definite improvement after treatment of cryptitis and associated lesions. By the presence of pain and its effect on the sympathetic and parasympathetic nervous system, many reflex bizarre neurologic conditions may be seen clinically. Genitourinary symptoms are also frequently associated.

Summary

1 Cryptitis is a disease that pathologically is confined not only to the crypts of Morgagni but the anal ducts as well.

2 If this diseased area is not removed in its entirety, certain local complications will inevitably result.

3 Because of the fact that the anorectal zone is a highly vascular and lymphatic terminal center of the circulation, there is necessarily a great absorptive action from any focal area of infection.

4 This focus of infection produces both local and systemic symptoms and diseases.

5 Methods of examination are important, and consequent methods of treatment are

doubly important to eradicate any local or systemic disease so related.

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Discussion

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treatment of a high percentage of these cases is primarily surgical⁹, in cases of an engorgement of the crypts, with slight redness and no pus formation at the time, office and home treatment will suffice. This consists of cleanliness by irrigations with warm alkaline solutions or normal saline immediately after bowel movements, followed by hot sitz bath for ten to fifteen minutes, plus office irrigations and the use of mild antiseptics. If the infection is more marked, adequate treatment necessitates radical dissection of the crypt and ducts, preferably under caudal anesthesia. As Blaisdell¹⁰ writes "Linear incision by cryptatome or other instrument is useless as recurrence will be inevitable. To perform the dissection expeditiously and with the least discomfort to the patient requires thought and practice." If in doing a cryptectomy sufficient drainage is not established by an excision of the infected anal ducts along with the valve and mucosa, a subcryptic abscess is almost certain to occur where previously a cryptitis was present.

It is conclusive that any crypt infection may result in an abscess. The location of the abscess may be determined by the extent of the infection from the crypt. An abscess is the first stage of a fistula, and careful attention to its surgery frequently prevents further pathologic changes. Many times, however, the amount of edema and induration, the quantity of pus present is so great that correct identification of the offending crypt is futile. The procedure then resolves itself into one or two more stages for the complete removal of all infected tissue, together with correct preservation of muscular action. The infected crypt may be identified by redness or by the presence of chronic granulation tissue¹¹. It may be scarified or obliterated, but proper dissection of the fistulous tract will lead one to its original source of formation. Mere incision of an abscess is not sufficient to prevent fistula formation. Consequent contraction of the infected tissues gives the fistulous tract, and such an incision provides only an external opening for the tract. It is essential for treatment of an abscess to correctly uncap it and expose it^{12, 13}. All trabeculated pockets must be broken down with the finger, and light iodoform packing placed in the cavity must be removed in twenty-four hours, followed by warm saline irrigations twice a day. It is not advisable to curet it, and ligatures are avoided as much as possible.

In a submucous abscess after the initial incision, an inverted V-shaped portion of the

mucosa is removed between curved Kelly clamps and the edges are tied over properly spaced clamps. Irrigations are done daily by use of a catheter and funnel.

Pelvic Abscess—The supralelevator space lies between the levator ani muscles forming the diaphragmatic floor to the pelvis and the peritoneal reflection above¹⁴. This space is occupied by loose connective tissue. This connective tissue is reflected over the prostate and the neck of the bladder in the male and the broad ligaments in the female. It is continuous with that of the mesorectum. Infection here may take place in several ways. It may spread upward from a deeply placed complicated anal duct. It may occur as the result of extension of a submucous abscess through the regional lymphatics. It may occur from a primary seminal vesiculitis or prostatitis or by a hematogenous infection from elsewhere in the body.

Several methods of treatment are advocated depending on (1) whether the abscess has broken through the levator into the ischio-rectal fossa, or (2) is a well-localized entity, or (3) is secondary to infection elsewhere, as ruptured appendix, tubo-ovarian abscess, etc.

Those of class 1 should be opened through the ischio-rectal fossa as an ischio-rectal abscess, with the incision carried through and across levator fibers. Those of class 2 or 3 may be done by rectal puncture with insertion of a 1/2-inch drainage tube, which is Hayden's method, or by Hibshman's¹⁴ method of opening the retrorectal space and sweeping around the rectum into abscess.

Systemic

It is reasonable that an established nidus of infection is the cause of many systemic diseases. Much stress is laid on focal infection but, through the apparent and persistent neglect to examine the rectum and its prominent anatomical parts carefully, an important field has been overlooked. Because of great absorptive power by a highly vascular and lymphatic field, the rectum and anus assume paramount significance by the presence of a local infection.

Dr. Raile, of Salt Lake City, has cited the fact that cryptitis may be a focus for many major ailments and states¹⁵ "that much significance has been ascribed to teeth, tonsils and other focal infections, but in the opinion of the writer one very frequent and vital infection is frequently overlooked. This infection can be found in the anorectal region in the

crypts of Morgagni Although this anorectal infection commonly described as cryptitis has been the subject of numerous reports by proctologists, it has not been accredited as being of major importance as a focus" He states, and correctly, that bacteria may pass from the anorectal zone *by the blood stream* to the liver, setting up a periportal hepatitis and cholecystitis, *by way of the lymphatics*, setting up an intrapelvic and intra-abdominal lymphangitis and lymphadenitis and, thence, by mingling of lymph and, by extension, infection of intra-abdominal organs and structures, *by way of the general circulation* to other remote structures through the following means (1) directly at the site of an anorectal infection through the middle or inferior hemorrhoidal veins, (2) by passing through the liver to the general circulation, (3) as lymph collected from the abdomen flowing through the thoracic duct and the left subclavian vein into the general blood stream

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If we accept the statement that 85 per cent of all infections, perirectal and perianal, originate in the crypts, then those causes that comprise the remaining 15 per cent would seem to be relatively infrequent. In my experience this ratio is at variance with Dr Pennington's statement, even though that statement has verification by others in the field of proctology.

We must consider the following sources in the remaining 15 per cent: (1) the source of infection from other organs, (2) injury of the rectal wall without perforation, (3) injury and infection with perforation of the rectal wall, (4) injury and infection of the sebaceous and sweat glands of the perianal skin, (5) pilonidal sinus, (6) diverticula of the rectum, (7) stricture of the rectum, found in lymphopathia venerea, (8) as a sequela to carcinoma, (9) accidents following episiotomy, and (10) sequelae of regional leitis.

Regardless of the source of perianal and perirectal infections, this is one of the most important conditions that presents itself for diagnosis and treatment. It behooves all of the profession to diagnose quickly and correctly the source of, and also the type of, infection.

As has been stated, the perianal and perirectal area is more than richly endowed with arterial, nerve, and lymphatic supply. The large amount of lymphatic, arterial, and venous anastomosis has been amply demonstrated by Mr Ernest Miles and Dr J P Nesselrode. Because of this rich endowment, infection finds its way readily to other areas through both portal and splanchnic systems.

There is one type of infection which most generally originates from the crypts that, I believe, is important, this being the only chance left to augment.

Perianal streptococcal infection was described over sixty years ago as erysipelas, later, as perianal cellulitis. In 1934 Dr Herbert T Hayes reported this condition, with the treatment by x-ray, before the American Proctological Society.

My reason for mentioning this condition is the quick cure without sequelae by radiation, as compared with the incision and drainage methods. The history and symptoms of these cases have been practically the same.

There quickly occurs a swelling of the perianal area, well out on the buttock. The area is a dark red color. There is considerable weeping and many small blebs are present. Upon pressure, there is a doughy sensation similar to that of the abdomen with tuberculous peritonitis. The affected area is hot. The body temperature is elevated—102 to 104 F, and the pulse rate is rapid and thready. The patient is profoundly toxic.

Generally, incisions of varying lengths and depths have been made in the area affected. These wounds are covered with a necrotic, black membrane. Serous material discharges from the wounds. This is probably due to the venous capillary and lymphatic stasis. No appreciable swelling is felt inside the anus or rectum.

X-ray treatment as recommended by Dr Hayes is given. The results might be described as miraculous—to say the least, marvelous and most gratifying. In forty-eight hours the picture is completely changed. The swelling subsides and the necrotic material disappears. The temperature and pulse rate return to normal. No laudable pus is present and no fistulous tract remains.

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JUNIOR SPEAKS

"Tommy, your manners are dreadful. You're a regular little pig at the table," said Father. Silence from Tommy, and Father added, "You know what a pig is, don't you?" "Yes, Dad," answered Tommy meekly, "It's a hog's little boy."

—Selected

SLIPPED UP ON HIM

William: Would you believe it, Jerry went and married that Miss Grimley during vacation.

Phillip: You don't say? Why I thought he was only flirting with her.

William: So did Jerry.

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WHY DIDN'T SHE?

Aunt (severely): When I was a small child I was told if I made faces like that my face would stay that way.

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LOW-DOWN HOAX

Bill: There goes the funeral for old man Jenkins.

Joe: You don't say? Is the old man dead?

Bill: Well, if he isn't, they sure are playing a mean trick on him.

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CIGARETTE SMOKING IN PREGNANCY

F J SCHOENECK, M D , Syracuse, New York

CIGARETTE smoking has become such a common practice that the question of its influence on pregnancy should be carefully studied. There is ample evidence in the literature^{1,2} that nicotine poisoning does have a deleterious effect on pregnancy and reproductive efficiency. However, there are few data on the effect of cigarette smoking as actually practiced.

The physician can almost assume from practical observation that moderate cigarette smoking, i.e., three or four cigarettes per day, has no apparent effect on pregnancy. Certainly, there is no evidence in the literature to the contrary. Are we, however, prepared to say that excessive smoking may not have some influence? In order to throw some light on this subject we have undertaken a series of experiments to demonstrate the influence of cigarette smoking on the offspring of rabbits.

We candidly admit that observations carried out on human beings would be of much greater practical value. However, aside from the difficulties involved in gathering trustworthy data, we must face the fact that were we to produce evidence of deleterious effects on the offspring of smoking mothers, the reaction on these mothers from a psychologic point

of view would be tremendous. We have, therefore, resorted to animal experimentation. We have attempted to produce conditions as similar to actual cigarette smoking as possible.

Methods

Normal, healthy rabbits were bred and the litters raised as controls. The offspring were weaned at twelve weeks. After a rest period the same does were subjected to cigarette smoking for a period of four weeks to acclimate them to this procedure. The smoke from one cigarette was blown into the nostril of the animal by means of a small catheter, each day. Our estimations, according to weight, showed that one cigarette a day for the rabbit was roughly equivalent to twenty cigarettes per day in the human. The gross difference was that the rabbits received all the smoke in a single exposure in contrast to the twenty exposures entailed in smoking that number of cigarettes.

After the period of acclimation, the does were bred to the same bucks that sired the control litters. The does were "smoked" daily throughout pregnancy and lactation. The offspring were not subjected to smoking at any time. The offspring were weighed at weekly intervals from birth until maturity, i.e., 30 weeks. The breeding bucks were not

From the Department of Obstetrics, College of Medicine, Syracuse University. Aided by a grant from the Hendricks Research Fund.

TABLE 1

Number of Weeks	Litter No 1 Not Smoked		Litter No 2 Smoked		Litter No 3 Not Smoked	
	Average weight, Gm.	Alive	Average weight Gm	Alive	Average weight Gm	Alive
Rabbit No 6						
1	140	6—1 stillborn	95	8		
4	213	6	164	7		
8	396	5	400	1		
16	936	5	720	1		
20	1,212	5	760	1		
24	1,448	5	880	1		
30	1,720	5		0		
Rabbit No 9						
1	147	6	97	4		
4	220	6	240	4		
8	413	3	440	2		
16	1,090	2	540	2		
20	1,210	2	630	2		
24	1,480	2	660	1		
30	1,600	2		0		
Rabbit No 10						
1	124	5		8 stillborn	150	2
4	192	6			300	3
8	540	1				0
16	1,180	1				0
20	1,150	1				0
24	1,220	1				0
30	1,200	1				0

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Symposium on Industrial Health

PERIODIC EXAMINATION

McIVER WOODY, M D , New York City

THE periodic examination is the best means yet devised of detecting disease in its incipient state, and yet during the past twenty years its benefits have reached only a fraction of our population. We doctors are partly to blame because we are trained to care for the sick, not to detect illness in the well. The more closely I study periodic examinations, the more certain I become that the examiner should really be called the "disease detector." Diagnosis plays an important part in medicine, but detecting disease in the apparently healthy person is a challenge to the wits and ability of the ablest medical practitioner.

Physical Examination Not New

The physical examination has an interesting though not lengthy history, but up to the present time it has been all too truly a physical examination. And yet many a healthy man is physically unfitted for work by a diseased mind. Here the Sherlock Holmes which is latent in every man, particularly the physician, should be given free rein. I should not dare make such a statement to a lay audience but before colleagues, trained in medicine, surgery, and psychiatry, I feel quite safe, and I believe your patients would be equally so.

In advocating a wider application of the periodic examination I do not attempt to represent it as something new or revolutionary, for it is neither. It is older than either roentgenology or antiseptic surgery, as a matter of fact, it is older than bacteriology itself. Unfortunately, its growth and development have not been so continuous or so vigorous, for though it has borrowed many techniques that are of the utmost value, the central core of the idea has changed not at all. Our fundamental approach to this problem is much the same as it was eighty years ago. But, if we are to do our full duty by ourselves and our patients we must be alive to the teachings of modern neuropsychiatry. Twenty-five years ago shell shock was a mysterious disease

peculiar to foul and loathsome trench warfare. In its place we now have its counterpart in the fearsome war of nerves, which affects all classes, but which is calmly accepted for what it is, simply because its true nature is understood by all.

In venturing to link the modern concepts of psychosomatic medicine to such a maternalistic procedure as the periodic examination, I shall not attempt to revise or improve the somewhat standardized blanks that have been put out by various organizations, but rather do I want to direct your attention for a few minutes to certain misconceptions that, to my way of thinking, have hampered its development, and have militated against a wider application of an idea that is of great potential value.

Granting for the moment that my approach to the whole problem is one-sided, let me, by turning to the past, trace the proposition backward to its beginnings, in the hope that I may be able to find something new to suggest, something worthwhile which has been overlooked. There may be a fork in the road where medical pioneers took the wrong turning, leaving the other path unexplored and its possibilities unutilized. If my quest is in any degree successful the remedy will be self-evident, and its application can safely be left to the profession at large.

Present Need

In troubled times such as these, when the nation is once again preparing for war, it behooves each one of us to keep ourselves in good physical condition. Indeed, as members of the medical profession we have a double responsibility here, for one of our first duties in a war such as this, which bids fair to become a struggle for survival between two opposing civilizations, one of which is entirely dependent on science and learning, is to do what we can to protect and maintain the health of all of our citizens.

There was a time when battles were fought and won by roving bands of mercenaries. Within the memory of most of us, campaigns were waged by conscript armies led by profes-

sional soldiers. But now all this has been changed by total warfare, which has brought the struggle to the home front, to every man, woman, and child in the population. No prosperous businessman can hire a substitute to do his fighting for him, no woman can continue to live peacefully in her home, and no child can grow up ignorant of air raids and high explosives. Nowadays, no individual can be forgotten, for each must play his part. No longer will it be sufficient for us doctors to examine the soldiers, we must maintain the health of the entire community, rich or poor, sick or well.

Views and Procedure—1861

Going back eighty years, let me quote from a lecture given in London, at the Infirmary for Diseases of the Chest, on June 19, 1861,¹ which except for its rather high-flown language might quite well have been written yesterday.

"I am perfectly convinced, from my own observation and experience in practice, that patients never think of consulting their doctors till these conditions of impaired general health have advanced far enough to have been developed into some form of disease—that thousands and thousands of people, believing themselves to be in health, are nevertheless undergoing these early, occult, and evasive stages of defect in the physiological state, and that such persons may be considered to be in health, not only by themselves, but by any one accustomed to associate with them, even though it be a physician, and that even if they submit to a medical examination, as ordinarily conducted, they may be declared to be in health."

May I point out the clear implication here that the onset of organic disease is always heralded by "early occult and evasive stages of defect in physiological state." This is an extraordinarily acute statement for the times. One might wish that this distinction had been developed further, but in all fairness we must realize that the subject of physiology did not exist when this lecture was delivered. At that time Claude Bernard was still without a laboratory in which to work, and yet here we have an unequivocal statement that a "medical examination as ordinarily conducted" may fail to reveal certain disturbances of function that foreshadow organic changes. The speaker continued as follows:

"I wish then, to propose, as the only means by which to reach the evil and to obtain the good, that there should be instituted as a custom, a system of periodical examination, to which all persons should submit themselves, and to which they should submit their children."

For this auspicious beginning, all honor is due Dobell, but before considering where his conception of the periodic examination fell short, I want to tell you something about the man himself.² Horace Benge Dobell was born on New Year's Day, 1828, and died on Washington's Birthday in 1917. During the reign of George IV, one of his early recollections as a child must have been the establishing of Greece as an independent kingdom under the protection of Great Britain, France, and Russia, as an old man of ninety, during the reign of George V, he lived to see Germany begin her campaign of unrestricted submarine warfare. In the field of science he saw even greater changes, for he was a contemporary of Charles Darwin, Louis Pasteur, and Joseph Lister and, of course, was greatly influenced by their work. His father was a prosperous wine merchant of London, and Sidney Dobell, the poet, was a brother. At the age of fourteen he was apprenticed to a surgeon, at seventeen he entered St. Bartholomew's Hospital, where he took prizes in surgery and legal medicine. At twenty-one he became a member of the Royal College of Surgeons, and at twenty-eight a member of the Royal College of Physicians.

After that, he practiced as a consultant, and probably as medical director of one of the early life insurance companies, for when twenty-five he had published an article³ on physical examinations for life insurance, with a list of questions for the guidance of local examiners in making their reports to the home office. Finally, in 1859 he was elected physician to the Royal Infirmary for Diseases of the Chest. It was there, at the age of thirty-three, that he gave a series of six lectures on the "Germs and Vestiges of Disease," and on the "Prevention of the Invasion and Fatality of Disease by Periodical Examinations." The first word in the title may be somewhat misleading to our ears, because Pasteur had not yet disproved the theory of spontaneous generation and Koch's discovery of the tubercle bacillus was not due for another fifteen years. With this background in mind, one can better appreciate the genius of this young consultant who, as a result of his familiarity with the scientific thought of the day, his experience with a life insurance company, and his services in the charity wards of a London hospital for pulmonary tuberculosis, invented the periodic examination and had the courage to advocate its universal application. But I, for one, feel that his conception had its limitations, and

that he gave the movement the wrong direction, from which it suffers to this very day. For, like many another consultant, he was guilty of an impersonal attitude toward his patients, and had little interest in them as individuals.

Believing as he did that periodic examinations could be put on what we would now call a "production basis," he drew up an elaborate list of questions or a sort of written examination to be taken by the patient with what help he could get from a senior student or junior physician. And again I quote

"With this schedule, so far filled up, the patient should now appear before an examining physician and surgeon. By them, his personal condition would be ascertained and entered on the schedule. During this time, his secretions would have been under examination by a microscopist and chemist who would fill in their report upon the schedule.

"Finally, with the schedule thus filled up, he should appear before a senior physician and surgeon, by whom the document would be examined, and any further questions asked, if necessary. It would be their business to form an opinion as to the physiological state, the damages sustained, etc., and to direct the hygienic and other precautions suitable to the case. In order to save time, and ensure that these directions should not be forgotten, certain forms of directions should be drawn up, suited to all the principal abnormal physiological states, and damaged conditions, which should be kept printed and numbered. The advising physician and surgeon would only have to mark on the schedule the necessary numbers, and these forms of directions might then be distributed by students, who would thus become familiar with the right methods of preventive treatment in particular cases."

It is only fair to explain that Horace Dobell had his hospital patients in mind when he laid out this rather elaborate and wholly impersonal procedure. But the fact remains that he did not feel it was something for the general practitioner to attempt independently. He put it thus

"There is nothing to prevent general practitioners from undertaking such examinations themselves. But the numerous and uncertain calls upon their time would probably stand in the way, and they would rather entrust the task to consulting men, in which case I think the connection between the two classes of practitioners would be of the most agreeable and advantageous kind."

Practice of Examinations Neglected—Doctors Guilty?

Horace Dobell may have been right, the general practitioner may not be particularly interested in the routine examination of ap-

parently healthy persons, but the fact remains that this idea, as ingenious as it may have been, did not take hold, instead, his suggestion was neglected and forgotten, only to be resurrected after our first World War, when the examination of drafted men revealed an appalling prevalence of physical defects that had gone unrecognized and untreated.

Perhaps we doctors are at fault. It is well to recognize that we tend to be fatalists as far as our own health is concerned. We are tolerant toward the medical student who fancies that he has contracted every dread disease he comes across in his textbooks, but when we graduate and become responsible for the welfare of others, we put away childish things and think of ourselves no longer. We close our eyes to the possibility that we ourselves may not be wholly sound. We ignore fleeting discomfort in the left chest and arm, we seldom test our urine for sugar and we seldom take our blood pressure. Until we come to believe in the periodic examination for ourselves we cannot expect to convince our patients that it is worthwhile for them to be examined at regular intervals. Until we ourselves are willing to be examined annually by some colleague in whose wisdom we have faith and confidence, we cannot speak with real conviction on the subject.

Modern Doctor Checks Body and Mind

Not that I would belittle the mechanistic ideals handed down to us by the nineteenth century, but I would go them one better, for along with the careful findings on kidney disease, I would have the physician so alert, so sensitive to the feelings of his patient that the patient would begin to talk about his life, his ambitions, his sorrows, the trouble with his wife, the vagrant pain in his left chest. Rather than a hundred questions on health, which the patient had to answer before being examined, I would have the modern doctor able to pursue and inventory swiftly all the necessary physical findings of the usual physical examination and would have him do more—I would have him try with gentle friendliness to find out if there was any mental distress which could or should be relieved.

Because we know so much more about the nature of infectious disease, because we are improving aseptic surgery every day, we must increase our knowledge and care of the recesses of the human mind if we intend to do our best for our patients. No longer can we say, even in jest, what they once said in

Vienna, "that the ideal patient had a diagnosis made by Skoda, an operation by Billroth and an autopsy by Rokitsansky"

Perhaps what I am trying to tell you is that we must abandon the impersonal approach to the periodic examination and get back to the friendly relationship between country doctor and patient before we modern medical men can give a truly comprehensive physical. Not that I would go back in years. Far from it, the x-rays, the blood test, the electrocardiograms are all extremely valuable, but before we moderns can search the mind we must know our patients, have their confidence, their respect, and their complete collaboration.

Examination Technic

I believe that the family doctor is the ideal physician to conduct such an examination but, except in a small town, the family doctor has given way to specialist and consultant. In his stead has appeared the company doctor—a physician who is usually on duty where the man works and to whom the man can come for anything from a cut finger to a broken leg or an attack of nerves. The plant doctor is able, in most cases, to give the physical examination year after year and get to know the workers personally. He thus becomes, as the years pass, both friend and health director. Because of this personal factor, a strange phenomenon in a mechanical age, the physical examination as done in large plants is rapidly approaching the ideal, as I see it. I speak from experience here. I have given thousands of physical examinations and I feel they have been successful if, when I go back to a plant, after some years, workers greet me and begin at once to tell me about themselves and their families because, though we may have seen each other for only half an hour a year, they still remember me as an interested friend.

I think that quiet, pleasant surroundings and freedom from rush and bustle make the man who is being examined feel more secure and that, as a result, the examination goes faster. I try to have my patients received promptly, shown into a small room where they may undress in privacy. I try to be ready and waiting when they come into the examining room, as if they truly were private patients. I seem to ignore the printed blank as much as possible because this apparent freedom from routine gives my patient the pleasing impression that he is the one and only person to be getting this particular examination. The more examinations I do, the easier it is to watch the patient with a sort

of all-seeing eye, and as the examination proceeds I try to keep part of my mind free from the actual physical findings and observe the patient's reactions to the things I am doing. Because of this I see things I wouldn't ordinarily see, for a patient's physical symptoms can easily blind one to the mental.

By taking the blood pressure first I am able to observe the patient when he is truly interested, for however mistaken his notions, every layman has ideas on blood pressure, and few are averse to airing them. Some even may ask questions. Usually this is such a good get-acquainted measure that I have to divert their attention to get an accurate reading, particularly if it seems better that they be not frightened completely out of their wits by one which is too high or too low. But this is helpful, too, for I learn much from what will divert him. I do try to be frank with him, so that he will not feel that vital information is being withheld, but we all know that there are times when blunt honesty is not the kindest policy.

Of taking the pulse I make a ritual, and then I get my patient on the scales. Though I have seemed acutely interested only in the things I am doing, I need hardly tell you that these minutes have been practically free time in which to evaluate the man and his behavior. After the height and weight comes the visual acuity test on an eye chart across the room, and now I may stare as closely as I please at the man without seeming unduly curious or presumptuous because his eyes are focused on the eye chart. By now the average patient is telling me things, and because I seem willing and interested they often run on and on. Actually, a few pertinent questions will elicit all sorts of intimate information which is usually given freely and in detail. Those patients who refuse to talk at first often start in suddenly once they are stretched out on a comfortable table and have become relaxed. Two things I try always to remember to omit no essential part of the examination and to let my patient know that what I am doing is for his benefit.

I try never to walk out on a patient until I have given him a clear idea of the result of the examination. If I can give him a clean bill of health I try to make him feel that I am proud and happy to do so. If defects have been brought to light I try to recommend a doctor he will know in town, that there may be a tie between him and the new man, even before he goes to him. A letter of introduction or a telephone call does much to speed the part-

ing patient to the specialist. If an operation is indicated, I have the patient sit down and go into detail with him to mitigate the first sense of shock and to convince him as promptly as I can, as friend and adviser, that operation will be truly beneficial to him. Most patients will go ahead and have a physical defect corrected immediately, once they realize that it will be to their advantage.

No doubt one of the best ways to convince a man of the worth of the physical examination is to advise him to have his children examined on their birthdays as a "health" present. I suggest that when this is done several snapshots be taken for the family album and the weight, height, and physical condition written down, along with the contagious diseases, if any, that the child has had during the year. In this way a simple, worthwhile record of the child—his physical and mental health during each year of his life—is assured. Most men immediately perceive the benefit this will be to their children and usually remark, "Gee, I wish I'd had such a record. I never did know what I've had besides measles and whooping cough, and as far as a birth certificate's concerned, I had to get my uncle to swear I was even born."

Because this record is not started at the age of one is no reason not to start. Even if a man is thirty-three, he will realize that with half a lifetime yet to live such a record may prove extremely valuable to him in later years.

Before their first physical examination I often found hard-boiled scoffers and skeptics, but after I have examined a man for two or three years, given him good advice about himself, shown him where his thinking was getting a little off the right track I have found that I could safely stake my reputation on the dependability of my findings.

Psychosomatic Medicine an Adjunct to the Periodic Examination

In closing, I hope I have convinced you that it is the humanness of the man giving the examination that counts as much as his medical skill. If I have also convinced you that it is this humanness that will make it possible for general practitioner or plant physician actually to practice psychosomatic medicine in the physical examination I will have succeeded in leaving with you the germ of what I believe is new in the periodic examination. If I have also convinced you that if a physical examination is good for the patient it is equally good for the doctor—I will be truly surprised!

References

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Discussion

Dr R. C. Kimball, *Brooklyn*—Dr Woody, I think, has stressed periodic physical examinations by citing from past experiences and outlining his approach to this problem. May I emphasize that the purpose of periodic physical examinations is the prevention of illness or disease. There are two phases of this prevention: education of the laity to prevention and the examination for the early detection of disease.

I agree with Dr Woody that we as doctors are partly to blame for not having made greater advances in periodic physical examinations in that we have not succeeded in educating the laity on this problem. There are two reasons why this has not occurred. We have not been able to erase from the mind of the "oldster" the still existing superstition regarding illness. However, among the "youngsters," public schools and colleges have done much. The other reason has been somewhat the fault of the doctor himself in that he fostered this superstition and fear by being uncommunicative and mysterious regarding the patient's illness. After he has made his study—history, physical examination, laboratory tests—and established his diagnosis, he proceeds directly to the point of telling the patient only what to do to rid himself of his disease.

We must go beyond the point that pain and cosmetic reasons cause the laity to seek medical attention. We can do this by suggesting to our patients that a "stitch in time may save nine," and that you would much prefer to see them yearly for the purpose of prevention of illness rather than care for them during an acute illness. You might go so far as to suggest that you will be glad to send yearly reminders, such as the dentists do.

Half of the practice of medicine is salesmanship—establishing a definite confidence in the patient toward you, not so much as to the powers as a doctor, as much as a confidant or advisor. Don't be abrupt, be willing to talk with him, not to him, be willing to listen and share with him his burden, whether it be himself or some member of his family.

I agree with Dr Woody establish some definite routine, a routine that you have found to be impressive. Stick to it, develop it, improve on it, and establish it to such an extent that you are unaware of it but the patient is not—that when the patient is with you, you are giving him your undivided attention and your sole concentration, he commands your one thought. When you have done this, regular periodic physical examinations will become the rule.

The stress placed on the mental aspect was

gratifying Remember the old saying—"that the practice of medicine is 90 per cent from the neck up" Of course, this is not true but it does say that you must sell yourself, that confidence must

be established, that the doctor has to be more than a physician, that he must be a "Tribal Medicine Man,"—a man who not only understands you but knows his medicine

NEW MEDICAL OPPORTUNITIES IN NATIONAL DEFENSE INDUSTRIES

C D SELBY, M D, Detroit

SINCE its organization in December, 1937, the Council on Industrial Health of the American Medical Association has foreseen great opportunities for general medical practitioners in service to industry beyond the care of occupational injuries and diseases and has endeavored to prepare the profession to meet these opportunities in a creditable fashion

Among the early discoveries were these amazing facts

- 1 Medical service in industry is predominantly in the hands of general medical practitioners.

- 2 Those who specialize in industrial medicine are relatively few, being employed mostly in large industrial establishments and engaged chiefly in applying measures for the prevention of occupational diseases and the promotion of health

- 3 Opportunities of like nature can be found in small manufacturing establishments as well as large and are, therefore, available to the general medical practitioners

- 4 These have, to a considerable degree, failed to see this opportunity, having limited their industrial activities to the treatment of occupational injuries and diseases

Realizing the importance of manufacturing in relation to national defense, the health of the workers in relation to defense manufacturing, and the medical profession in relation to the health of the workers, the Council of National Defense of the Federal Government has taken the following action

With the approval of the President it has designated the Federal Security Administrator as coordinator of all health, medical, welfare, and related defense activities He is authorized, with the approval of the President, to appoint such advisory committees and subcommittees as he may find necessary or desirable to assist him in his coordinating duties

One of such committees thus appointed is known as the Subcommittee on Industrial Health and Medicine and it functions through the Health and Medical Committee—consisting of Dr Irvin Abell, the three surgeons general, and the secretary of the National Research Council—as an adviser to the coordinator in industrial health and medical activities relating to national defense

This Committee is pursuing its work of coordinating with these two objectives in view (a) the integration of all federal, state, and volunteer organizations—such as the Council on Industrial Health, the American Medical Association, the American Association of Industrial Physicians and Surgeons, the American Industrial Hygiene Association, and the Section on Industrial Hygiene of the American Public Health Association—to the end that an organized program in the field of industrial health can be applied to the national defense industries, and (b) the promotion of a demand for more complete health service in the small, as well as large, defense industries

The latter points directly toward the general medical practitioners who serve industries either on a part-time basis or on call

Two means of health protection are essential in the defense industries

- 1 Control of manufacturing conditions known, and thought to have, adverse effects upon health—this is known as "industrial hygiene engineering"

- 2 Medical service for the workers in the shape of physical examinations, safe placement, consultations in regard to health, and the care of occupational injuries and diseases all of which are collectively known as "industrial medicine"

"Industrial hygiene" and "industrial medicine" jointly comprise the science of industrial health

It is particularly in relation to industrial medicine that the new medical opportunities are found in the national defense industries Openings for full-time industrial doctors are

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From the General Motors Corporation Detroit

increasing, and already there appears to be a shortage of qualified men brought on, no doubt, by military activities. The Council on Industrial Health of the A.M.A. proposes to assist in this emergency by registering all physicians who wish to take up industrial medicine as a career, regardless of training or lack of training and experience. The training will have to come later, whether in service or by special arrangements yet to be completed. Those who might be interested are requested to address Dr C M Peterson, secretary of the Council on Industrial Health, at 535 North Dearborn Street, Chicago. The demand for part-time doctors who are usually general medical practitioners is also growing, and it is here that those who serve industry on a call basis are most likely to find their opportunities if they are prepared to do something more than treat occupational injuries and diseases.

This type of industrial service need not interfere greatly with private practice. There is nothing new about it except that in the past it has usually not included physical examinations, safe placement of applicants for work, etc., being limited to the care of compensation cases. As industry is now expecting more than this and as the Subcommittee on Industrial Health and Medicine is urging more upon industry, the Council on Industrial Health recommends that county and state medical societies prepare themselves to give local post-graduate instruction to those physicians who are interested, especially those who are already doing part-time work on a limited scale. An outline of such a course can be obtained by application to the secretary of the Council on Industrial Health, and no doubt there are enough able industrial physicians to put it on in an attractive and interesting manner.

A course of this nature will prepare to a considerable extent the general medical practitioners to render a service in industry which compares favorably with that of the full-time service of large establishments.

In order that there may be an adequate conception of medical service in industry, the following are offered as principles governing practice of that character:

- 1 Prevention of disease or injury in industry by establishing proper medical supervision over industrial materials, processes, environments, and workers
- 2 Health conservation of workers through physical supervision and education.
- 3 Medical and surgical care to restore health and earning capacity as promptly as

possible following industrial accident or disease

The duties of the physician in industry are sketched as follows:

Prevention—The physician should acquaint himself by regular inspection with all materials and processes used in the working environment over which he has supervision to the end that he may recommend appropriate protection of employees from conditions actually or potentially harmful.

Industrial Physical Examination—Pre-employment physical examinations should be complete. They should be used only for the purpose of assisting the employer to provide safe and healthful employment for the prospective workman.

Periodic physical examinations should be complete enough to provide positive health protection for the workmen and to safeguard the public welfare. The frequency of such physical examinations must be determined by the physician in accordance with specific requirements.

In the interest of completeness and uniformity, physical examination forms are recommended. Personal records of this character are confidential and should always be kept in the custody of the medical department. Access to these records should be granted only upon request or consent of the examinee.

The examining physician should acquaint the examinee with the results of all examinations and take steps to refer all conditions requiring correction to the physician of the worker's choice.

Health Education—The plant physician should take advantage of all opportunities for beneficial instruction of the workmen in hygienic living both in and out of the industrial environment.

Medical and Surgical Care (1) *Treatment of compensable injuries and diseases*—The disabled worker should be free to choose his physician from all those competent to supply the required services. Competence should be determined by professional standards only.

(2) *Treatment of noncompensable injuries and diseases*—The treatment of injuries or diseases not industrially induced is a function of private medical practice from which the industrial physician should abstain except in the case of

(A) *Minor ailments*—The physician in industry may treat minor physical disorders which temporarily interfere with an em-

ployee's comfort or ability to complete a shift, and for the relief of which he may need immediate medical attention

(B) *First aid for urgent sickness*—The physician in industry should employ such measures as the emergency dictates in all cases of urgent sickness occurring during working hours upon the working premises until such time as prompt notification of the family physician relieves him of further responsibility

(C) *Rehabilitation after sickness and injury*—The physician in industry can properly assume responsibility for those phases of rehabilitation after disability, industrially induced or otherwise, which progress best under controlled working conditions

The general relationships of the physician in industry are as follows

With the Employer—Adequate industrial medical supervision requires full- or part-time service of physicians depending upon size of plant, location, prevalence of dangerous health exposures, and other considerations. In every case a physician's relation to industry is improved if he does not solicit the appointment. Written contracts between a physician and an employer are usually unnecessary. If a contract seems desirable a copy should be filed with the local county medical society.

With the Employee—Adequate industrial health conservation depends upon cooperation from workmen. They must, therefore, receive the same courtesy and professional honesty as do private patients.

Industrial physicians should not treat employees for noncompensable disability or assume any obligation contractual or otherwise for the diagnosis and treatment of dependents of employees or members of plant administrative or advisory staffs except in the absence of conveniently accessible independent private facilities.

With Industrial Nurses and Nonprofessional Assistants—Industrial physicians should be responsible for the proper instruction and subsequent activities of nurses and other assistants. Their functions should be described in clear and comprehensive written orders posted in the medical department. There should be no delegation of services requiring expert medical attention.

With Consultants—Assistance should be asked of consultants in industrial medicine, surgery, hygiene, or in the clinical specialties whenever the interests of the workmen demand it.

In the control of working environments the

same consulting arrangements should be entered into with industrial hygienists and safety engineers.

With Official Health Agencies—The physician in industry should consider himself as a deputy health officer in practice if not in fact. Assistance from bureaus of industrial hygiene in state and city governments to control healthful working conditions is available. In return, the industrial physician should cooperate by accumulating and reporting compilations of dependable data on the relation of occupation to morbidity and mortality.

The foregoing outline of medical service in industry is conceived in the sole purpose of giving the employed population the best possible health protection consistent with (1) the purpose of industry, which is manufacturing, (2) the employer's responsibilities as fixed by law, which are the prevention and care of, and compensation for, occupational injuries and diseases, (3) the duties and objectives of official and nonofficial health agencies, which are distinctively in the field of preventive medicine, and (4) the employee's rights as to free choice of physician in the care of sickness and injuries not legally related to occupation.

This conception offers a broader scope to industrial medicine than is generally understood and appreciated by physicians in private practice, yet it recognizes their rights as private physicians as well as those of other parties concerned in the general problem of protecting the health of the working people.

Discussion

Dr R. C. Kimball, *Brooklyn*—Extensive discussion of Dr Selby's paper is unnecessary since he has given a clear, concise statement of existing facts. These are (1) what steps the Federal Government has taken to intergrade the present medical and hygienic agencies into a working unit to oversee or supervise the health of the defense worker, (2) that there is room in this defense industrial medical setup for more and more physicians, with instruction for those inexperienced in industrial medicine, and (3) the part the physician should and will play in defense industry.

I wish to emphasize another fact not discussed here—that is, both the Army and Navy are cognizant of the need of coordination and cooperation on their part with this program. They must depend upon adequate war material being delivered in a steady flow to them by these defense industries in order to build our defense efficiently as well as rapidly. They realize as much as we the need for safe speed, that this war is being operated on a time schedule and, therefore, early delivery depends upon safe and

healthful working conditions and, above all, the continued good health of every worker

There is yet another fact that I think should be called to our attention—that is, once this system comes into full operation it will have such momentum that it will carry over to the near defense industries and, finally, into all industry, particularly so if this war lasts a number

of years. This is brought up not to cloud the present issue but to clarify it, since we must at the same time carry on long-term thinking about our medical problems as well as short term present-need thinking. In other words, are we and will we be prepared from a medical standpoint to meet this demand with a concrete positive answer for the benefit of both medicine and society?

INDUSTRIAL HEALTH AND THE GENERAL PRACTITIONER

LEVERETT D BRISTOL, M D, Dr P H, New York City

IN NO field of medicine, public health, or allied sciences have more rapid or significant developments recently taken place than in that of industrial health. The terminology and objectives of today are different from those of yesterday. A short time ago one spoke only of occupational diseases and accidents. Now one speaks of industrial health, including the prevention and control of syphilis as well as of silicosis, of tuberculosis as well as of traumatic neurosis, of pneumonia as well as of plumbism, of the common cold as well as of carbon-monoxide poisoning, of heart disease as well as of heat exhaustion, and of off-duty accidents as well as of industrial injuries. Industrial health implies not only that health should be promoted in industry but that industry should take a leading part in community health conservation.

The vast majority of workers are employed by smaller plants and business concerns, most of which have little or no facilities for adequate programs of industrial health. For smaller business concerns much of the health service and medical work ultimately must be made available either (a) by groups of these smaller concerns working together as units through some joint plan of centralization—as, for example, those in one building or trade group or in a restricted locality—on the basis of pooling of costs for medical, nursing, and other assistance required, or (b) by local community agencies such as official health or labor departments, voluntary health agencies, university institutes of industrial hygiene, or organized local medical societies or groups of physicians. In this latter connection the general practitioners of medicine would have important functions to perform.

The science and art of industrial health like the worker whose mental and physical fitness it serves to protect and promote, have evolved through periods of infancy, childhood, and adolescence into vigorous adult life. It may be of interest to emphasize the changing characteristics of organized industrial health promotion through these four periods and to note the relationship of the practitioner of medicine to this development.

I Development Periods of Industrial Health

(1) *Infancy—Traumatic Surgery*—A little over twenty-five years ago, interest in the health of workers in various industries of the United States was aroused, particularly by the need for surgical care or treatment of industrial accidental injuries and in the newer compensation cases associated therewith. Traumatic surgery rapidly developed as a specialty, and the company surgeon became the first central figure in the field of early industrial medicine.

(2) *Childhood—Accident Prevention*—The next stage in the development of industrial health as we know it today was that of accident prevention. To the credit of numerous lay representatives of industry and such organizations as national, state, and local safety councils, excellent results followed the inauguration of industrial safety programs and practices. The key person of this period has been the safety engineer or supervisor. However, there are important medical aspects of accident control, and the practicing physician working in the industrial field has much he may contribute to the solution of this problem of accident prevention and safety. The physician's chief function during this period has been in the teaching and practice of first aid, which is one of the most important adjuncts of safety work.

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 30, 1941.

Health director American Telephone and Telegraph Company

(3) *Adolescence—Occupational Disease Control*—The third stage in our well-rounded development of industrial health in this country has been associated with many significant discoveries in relation to occupational diseases and in the establishment of procedures for their control. The general practitioner of medicine has long had knowledge of the diagnosis and treatment of these conditions, but he has had to depend to a considerable extent on the chemist, the toxicologist, the laboratory expert, the engineer, or the so-called industrial hygienist for much of the recent progress in prevention and the hygiene of the industrial working environment.

(4) *Adult Life—Positive Health Promotion and Sickness Prevention*—While these four periods in the development of organized industrial health work are not mutually exclusive—inasmuch as each period partakes somewhat, and makes use of, the technics of the period that has gone before—the present stage of industrial health activities involves positive health promotion and education and sickness and accident prevention on a broad scale. Attention must be given not only to occupational injuries and diseases but also to the prevention and control of all nonoccupational sickness and accidents, with special reference to the common diseases of the upper part of the respiratory tract, tuberculosis, syphilis, heart disease, diabetes, appendicitis, and arthritis, as well as so-called off-duty accidents in the home and on the public highway. In this complete development of the modern industrial health program the general practitioner will have an increasingly important part to play.

Gradually weaving her way into the very warp and woof of industrial health, the industrial nurse, particularly in this present period, has come to occupy an important place in what might be called the industrial professional triumvirate along with the physician and the hygienist.

II. The Physician in Industry

Industrial physicians may be classified into three groups based on the amount of time given to work, viz (a) those on full time, (b) those on part time, and (c) those on call for special emergency services.

The full-time industrial physician usually is a member of the company medical department staff on a salaried basis, with special training and experience in industrial medicine. He must assume duties not only as a consult-

ing physician or surgeon but also more or less as the health officer of the company, applying all of the known principles of preventive medicine and industrial hygiene to the employee group. In some of the larger companies various of these functions may be separated under several physicians.

Part-time physicians give shorter or longer periods of time to services in one or more company plants. They usually are paid a stated sum per week, month, or year by the company in question according to the amount of time given. In general, their activities are associated with physical examinations, case work, and special problems having to do with compensation and other medicolegal matters.

Physicians on call serve only on special request. They and the part-time plant physicians are the usual community practitioners and specialists without any particular training or experience in the medical or health problems of industry. Up to the present time most of the smaller industrial plants are served by these general practitioners, and industry is slowly making more and more use of such medical knowledge and service.

In no sense should the so-called industrial physician be a competitor of the general practitioner in the community. All members of the medical profession, including the general practitioners, the full-time and part-time industrial physicians, and the public health officers, should work together for the benefit of all concerned and for the better promotion of industrial health.

(1) *The General Practitioner and His Functions*—Without attempting to go into detail as to the functions or duties of the general practitioner in relation to industrial health, it may be stated that his chief obligations and opportunities are as follows:

(a) To promote industrial health as an important function in the larger field of public health.

(b) To maintain joint responsibilities to employers, employees, and official governmental agencies concerned with industrial health.

(c) To recognize and report occupational diseases and all other diseases required by law to be reported.

(d) To encourage management and labor to see the value of industrial health conservation.

(e) To educate and advise employed persons regarding their health.

(f) To make pre-employment or preplacement and other physical examinations that

may be required and to assist in the follow-up of cases needing correction of impairments

(g) To guide employed individuals to adequate medical, surgical, or specialized treatment facilities where necessary

(h) To assist in matters pertaining to general sanitation of the plant and to have knowledge of the potentially toxic materials or disease-producing processes used in any organization that he may serve

(i) To have a general knowledge of employee and industrial relations and of personnel practices and facilities

(j) To be versed in the handling of traumatic surgical emergencies and in workmen's compensation laws

(k) To work in harmonious and ethical relations with fellow practitioners and industrial physicians

(*ℓ*). *The General Practitioner and His Leadership*—The most essential requirement for the ultimate success of industrial health administration is a sympathetic cooperation between the private practitioners of medicine and surgery and the industrial authorities, including lay and medical leaders of private industry and governmental agencies. It may be stated without much fear of contradiction that the general practitioner of medicine, whether he is giving a small amount of time directly to industrial work or serving industry indirectly as the private physician to employed persons, is potentially the most important unit in industrial health work. On him, at present, largely rests the success or failure of such work, particularly for the smaller industries. While much may be said in favor of the thesis that industrial health service is not a medical monopoly, it must be admitted that it would be more difficult to carry on successful industrial health work without the physician than without the other specialists who make up the so-called industrial health profession.

Special studies of the causes of industrial absenteeism indicate an average of a little less than one-half day lost time per person per year from industrial accidents, a little over one-half day per person per year from non-industrial accidents, and over eight days per person per year from the ordinary run of sickness. Only 10 per cent of the lost time of employees is due, in general, to accidents and occupational diseases that are compensable. These facts emphasize the problems for immediate attack and also suggest the large part that the general practitioner of medicine

should have in their solution in cooperation with industrial management and workers.

(3) *The General Practitioner and National Defense*—Industrial health work should be a strong arm in national defense, particularly in the preservation of expert workers and assisting in the development of additional skilled workers. Reducing lost time due to occupational and nonoccupational illness and accidents and cutting down excessive exposure to injurious materials are parts of the industrial health program which will be conducive to maximum national effectiveness and production. It is particularly necessary that studies be made to determine unfavorable environmental factors in the production of war equipment and munitions. As a matter of fact, the needs of national defense require a strengthening and broadening of the entire industrial health program all along the line, from private industry to local, state, and federal jurisdictions. In this significant period of rearmament during which our chief defense will be our industrial skill, let us be sure that we place first on our list the health and safety conservation of our industrial workers. In this connection the general practitioners of medicine will be called upon for an ever increasing leadership.

Man power is the greatest need both of industrial production and national defense. Adequate man power is dependent upon the highest type of mental and physical fitness. The speed-up of production and manufacture, the development of new materials and methods, the increased employment of new workers unused to the hazards of industry will require new industrial health routines and regulations, more intensive study and research in the field of occupational diseases and industrial poisons, and the extension and improvement of all health and safety education. To speed the work but to spare the worker should be our aim.

Industrial health preparedness in the United States is only one phase of a general health preparedness program, although from the standpoint of national defense industrial health undoubtedly should command first attention since it involves our adult civilian population of productive workers and the enlisted land, sea, and air forces of the country, upon all of which successful national defense in times of emergency must depend. Industrial medicine, even in a national defense program, must be preventive and educational, as well as reparative, reconstructive, and curative. General practitioners will have impor-

tant parts to play in the national defense program both from the standpoints of (a) the physical and mental fitness of civilian workers and enlisted forces, and (b) the safety and healthfulness of working and training environments

According to recent data obtained by the American Medical Association, while upward of 10,000 carry on some industrial activity, there are probably less than 5,000 out of a total of over 175,000 physicians canvassed in the United States who can qualify as competent in the field of industrial medicine. Only about 1,300 could be listed as actual specialists or experts. This emphasizes one of the chief unmet needs in connection with the national defense emergency and calls not only for more and better graduate and postgraduate instruction on industrial health in our medical schools but also for the immediate organization of short industrial health courses in strategic training centers throughout the United States, as well as "on-the-job" refresher courses by local medical societies.

III Industrial Health and the Medical Society

The Medical Society of the State of New York for some years has had a Section on Industrial Medicine and Surgery, active, particularly, in connection with the annual meeting of the Society. In addition, there is a standing Committee on Industrial Dermatozoses and one on Workmen's Compensation. In conformity with the recent trend in many states, it is respectfully suggested that the Society create a standing Committee on Industrial Health and plan the scope of its activities in cooperation with the Council on Industrial Health of the American Medical Association and other state committees of like nature. Moreover, in those counties made up of large industrial populations, it would be desirable to encourage the establishment of Committees on Industrial Health in county medical societies where this has not already been done. It is here that most of the important industrial health problems and services must be worked out in cooperation with local community agencies, public and private.

The Council on Industrial Health of the American Medical Association has developed a guide to committees on industrial health in state medical societies, and it includes the following suggested objectives

- 1 To train industry and labor to the value of industrial health conservation

- 2 To develop a clear understanding of the proper scope and functions of industrial medicine and to clarify relationships between private and industrial practice

- 3 To keep the medical profession informed about all accepted methods for reducing the frequency and severity of industrially induced disability

- 4 To elevate medical relations under workmen's compensation

- 5 To scrutinize all legislation affecting the health of industrial workers

- 6 To improve relationships between medicine and insurance

- 7 To establish working relationships with all agencies in the state interested in industrial health

- 8 To arrange for the adoption of similar activities through cooperating committees in the medical societies of the industrial counties

To accomplish these objectives it has been recommended by the Council that the personnel of the state committees include representation from

- 1 Private practice
- 2 Industrial medical practice
- 3 Medical representation, if such exists, from each of the following
 - (a) State bureau of industrial hygiene.
 - (b) State workmen's compensation agency
 - (c) The medical faculties in the state.
 - (d) Industrial insurance company

A bulletin has been developed by the Council on Industrial Health to permit interchange of ideas between committees of the state societies and as a means of estimating progress.

It is my privilege, as a member both of this Society and of the Industrial Health Council of the American Medical Association, to offer on behalf of the Council every possible assistance in furthering the interests of the Medical Society of the State of New York and the general medical practitioners of this state as they relate to the increasingly important subject of industrial health.

Discussion

Dr R. C. Kimball, Brooklyn—Dr Bristol has expressed in a most enlightening way the relationship between the worker and his family doctor. Today, every family doctor is, in reality, an industrial physician, whether employed by industry or employed by the worker. This is true because most of the larger industries have medical de-

partments that control the sickness benefits that the worker receives and, as such, are in constant contact with the general practitioner. This is an indirect relationship but it is becoming more direct each year. The industrial physician is actually "looked up to" by the workers because he has shown them to what extent he may benefit them, and he is in reality a "go-between" between his company and the workers. He takes up the varying problems that confront the industry—the working conditions—partially guides the safety programs, even extends his helping hand into the home of the worker through advice and through programs of illness preventions, and may even plan with employers on health problems.

We speak of industrial health not because it is apart from the general health but because as industrial physicians we have the worker under our control for at least eight hours a day. This amount of time gives us the opportunity to work with him and for him not only because of accidents but all the other illnesses that may overtake him. Industrial Health is only a portion of the general health program, and due to the changing social order we are able to do today what we could not do forty years ago. Medicine, as it should, must follow in the wake of all social changes or reforms. It must, however, keep up with these changes, and the industrial physician can guide and aid medicine in these changing times. Dr Bristol's suggestion of creating a standing committee on industrial health should be acted upon without hesitation. Dr Bristol has listed eight definite reasons why this committee should be formed, and with the defense program going into high gear we, as industrial physicians, should be ready to answer the call that is becoming more insistent each day.

Discussion of Symposium

Dr Irving Gray, *Brooklyn*—The appeal issued by Dr Woody for the periodic health examination is a reiteration of what the leaders in medicine have long been advocating.

From the standpoint of the laity and from the point of view of the physician the periodic health examination is highly desirable. The profession has long recognized that diseases such as hypertension and associated cardiovascular phenomena, diabetes, and nephritis may exist for months and years before symptoms or complications arise which bring the patient to the doctor. Many of the complications of these "silent diseases" are irreversible and medical science can accomplish little when the disease is treated at a late date. The reduction of the mortality rate from carcinoma depends primarily upon early diagnosis.

The periodic health examination is essential if early diagnosis is to be made. It is not uncommon among those interested in industrial medicine to see individuals with active pulmonary tuberculosis engaged in arduous physical activi-

ties. These individuals have no symptoms and continue in their work until some accident occurs and the question of compensation arises. The underlying disease is then revealed.

Experience has shown that there is no parallelism between pathologic findings and clinical symptoms. The autopsy frequently discloses findings entirely unexpected and unrelated to the cause of death and unassociated with any clinical symptoms. The corollary is, of course, correct. There are patients with many complaints who have no organic disease.

The logical answer to the entire question is the periodic health examination. This can only be achieved by intensive education of the public.

Dr Selby has drawn attention to the new medical opportunities offered in National Defense Industries. The presentation by Dr Bristol on "Industrial Health and the General Practitioner" has amplified and correlated the position of the general practitioner and his relationship to the entire problem of Industrial Health in National Defense.

In the Kings County Medical Society there has been organized a Committee on Industrial Health. We have recognized, as Dr Selby has pointed out, that the Medical Service in Industry is predominantly in the hands of the general medical practitioners. As a committee we are familiar with the fact that comparatively few industries have physicians in their employ either full time or part time. It therefore becomes essential for organized medicine to assume the responsibility of forcefully bringing home to the general practitioner the important part that is his in this entire program of Industrial Health. We have received the fullest cooperation from the Council on Industrial Health of the American Medical Association, especially through their printed bulletins.

I agree with Dr Bristol that it would be advisable for the State Society to create a standing committee on Industrial Health. Similar committees in the component county medical societies should be organized. Although the basic problems and principles are the same in all county societies, special problems may arise in certain communities, as occur with a sudden shift of a large population to a given area.

Such problems require the complete cooperation of the committee on industrial health, the general practitioner, and the public health officers. Likewise, in certain localities, the use of special chemicals or metals may require the education of the practitioners in the given locale in the early recognition of occupational disease. The problems that arise can be promptly and competently met, if proper organization exists and all forces intergrade.

The conception of medical service in industry, as outlined by Dr Selby, needs little comment. Prevention of disease or injury has always been recognized as the first step in any program.

Progress in the control of occupational disease

continues The physician in industry makes his contribution in the field of Preventive Medicine The value of the service by the physicians in industry should not be estimated by the number of patients referred to the family physician for treatment upon discovery of such diseases as tuberculosis, syphilis, etc., as a result of an industrial physical examination but rather from the larger, namely, the public health, point of view

The physician in industry is adequately discharging his responsibilities to his patients and to the medical profession. Dr Bristol has ably discussed the position of the general practitioner in his relationship to this entire question of Industrial Health in National Defense

There can be no difference of opinion as to the importance of an adequate health examination for all individuals If periodic health examinations could be made obligatory among all individuals we would have an index of the health of the Nation which would be of immense value The position of the family physician in relation to the

periodic health examination has been ably reviewed by Dr Woody It does seem essential from the industrial point of view, however, that a complete physical examination should include an x-ray examination of the chest, an examination of the eyes, ears, etc., in order that the health of the worker, as well as the interest of the public, is adequately protected This physical examination by teams of specialists under the supervision of the county medical societies may be desirable The result of such examinations and recommendations for treatment can be forwarded to the family physician

The term "vocational examination" rather than the term pre-employment or employment examination would seem more fitting The term "vocational examination" more accurately describes the purpose of the health examination The education of the physician and more especially the education of the public is most essential in this program of Industrial Health and Vocational Health Examinations

AN EXAMINATION COMING UP? PREPARE AT THE RACES, CORNER MOVIE

The "midnight oil" burns no more, for cramming avarice naught according to high-school teachers who recently took an examination in New York City They called the questions "silly" and "assumed" but the Board of Examiners had no apologies to make Here are some samples

- 1—The planet that in November, 1940, crossed the face of the sun thirty seconds later than the astronomers had predicted was (a) Venus, (b) Mars, (c) the moon, (d) Saturn, (e) Mercury
- 2—Much publicity has been given to experiments by scientists who claim to predetermine the sex of cats, dogs, etc., by the use of (a) adrenalin, (b) sulfanilamide, (c) hormones, (d) vinegar, (e) baking soda
- 3—The race horse which became the world's greatest money winner in 1940 was (a) Man o' War, (b) Seabiscuit, (c) Level Best, (d) Kayak II, (e) Eight-thirty
- 4—In February, 1940, Joe Louis fought with Arturo Godoy The fight lasted (a) two,

(b) seven, (c) eleven, (d) fifteen, (e) twenty rounds

- 5—The star of the French film "The Baker's Wife" was (a) Jean Gabin, (b) Maurice Chevalier, (c) Will Fyffe, (d) Conrad Veidt, (e) Ramu
- 6—A recent collection of verse by Ogden Nash is entitled (a) "No Stone Unturned," (b) "Behind the Lines," (c) "All Gaul Is Divided," (d) "The Face Is Familiar," (e) "Spring Will Not Fail"
- 7—"Foreign Correspondent" was directed by (a) Frank Capra, (b) Cecil B DeMille, (c) John Ford, (d) Alexander Korda, (e) Alfred Hitchcock
- 8—The polo player who retired in 1940, after being the top player for ten years, was (a) Stewart Iglehart, (b) Cecil Smith, (c) Robert L. Gerry, Jr., (d) Thomas Hitchcock, Jr., (e) Alan L. Corey, Jr
- 9—The best way to stop a nosebleed is to use (a) baking soda, (b) salt pork (c) cotton, (d) beef liver, (e) silk

[Answers on page 2051]

ARE YOU WEARING A P C G N Y BUTTON?

Every contributor to the Physicians' Committee of Greater New York—the Medical Aid Department of the British War Relief Society—receives a button upon making a donation It is very attractive with the emblem of Aesculapius shown in white on a green Geneva Cross which is encircled in royal blue If you haven't yours, mail in your contribution to Dr Adolph G. DeSanctis, chairman of the Physicians' Committee of Greater New York, The New York Academy of Medicine, 2 East 103rd Street, New York City There is no need to tell you what your help will do

The committee was organized last April by Mrs W. Coda Martin and Dr Alfred Hellman, president of the New York County Medical Society

The other officers are Dr B. Wallace Hamilton, secretary, Dr Kirby Dwight, treasurer, Dr Chas. Gordon Heyd, Manhattan vice-chairman, Dr John E. Jennings, Brooklyn vice-chairman, Dr Nathan B. Van Etten, Bronx vice-chairman, Dr H. P. Mencken, Queens County vice-chairman, and Dr Herbert A. Cochrane, Staten Island vice-chairman

CLINICAL STUDIES IN ELECTROCARDIOGRAPHY

IV The Value of the Electrocardiogram in Coronary Thrombosis, with Special Reference to Localization of Infarct

ABRAHAM LIEBERSON, M D , JULIUS CHASNOFF, M D , and A ALLEN GOLDBLOOM, Major, Medical Corps, Army, U S A , New York City

EVER since the studies of Smith,¹ Herrick,² Pardee,³ and others who described the characteristic electrocardiographic changes after acute coronary occlusion, the exact correlation between this condition and its electrocardiographic representation has been of great clinical interest. The importance of the role played by the electrocardiogram in the diagnosis and prognosis of coronary occlusion has been appreciably increased by the work of Parkinson and Bedford⁴ (and independently by Barnes and Whitten⁵) who differentiated, in 1928, the prominent electrocardiographic changes in lead I caused by anterior infarct (T_1 type) from that seen in posterior infarction where similar changes are found in lead III (T_3 type). Wilson and his coworkers⁶ further differentiated the prominent Q and QRS changes in the first lead in anterior infarction (Q_1 type) from the QRS changes in lead III in posterior infarction (Q_3 type). This electrocardiographic localization of the infarct is believed to be not purely of academic but of prognostic importance by many observers. Wood and his coworkers⁷ feel that posterior infarction (right coronary) is more favorable than anterior infarction (left coronary).

In 1932 the accuracy of the electrocardiographic detection and localization of coronary infarction was further increased by the use of chest leads, introduced by Wolferth and Wood⁸ after the experimental work of Wilson.⁹ The 4-lead electrocardiogram was found to be especially revealing when repeated often so that the serial changes could be followed, particularly in lead IV.¹⁰ In 1938 a standardization of the various chest leads in use was effected following our original suggestion,¹¹ so that we are now beginning to exploit fully the electrocardiogram as a help in the diagnosis of coronary occlusion. A similar refinement has occurred in the pathologic study of postmortem material in coronary occlusion. The coronary vessels are now all traced to their minutest branches, and the

scars and aneurysmal bulging of old infarcts are noted as well as the myomalacia of more recent ones. In short, we are beginning to be in a position to determine how accurate the electrocardiogram is in the diagnosis and localization of cardiac infarction by use of serial 4-lead electrocardiograms and refined pathologic technique. We expect to obtain enough material in the next four or five years to report upon it at the end of that time.

There is, however, a definite clinical need at present to pause and review our past findings in the light of our present knowledge of this disease, for only rarely in our private practice are we able to follow a case with numerous 4-lead electrocardiograms and conclude the study with a thorough postmortem examination, especially since the patient often reaches exitus before electrocardiograms can be taken. The most common situation as we find it in practice is still one where we are asked to determine from a single 3- or 4-lead electrocardiogram and the clinical examination of the patient whether coronary occlusion has taken place. We therefore feel it worthwhile to review the 34 patients with coronary thrombosis proved by autopsy at Beth Israel Hospital, New York City, in the past ten years, who had one or more electrocardiograms taken before death. Usually a single 3-lead electrocardiogram was obtained. Aside from some clinical correlation that we shall speak of later, our main interest was to compare the accuracy of clinical as against electrocardiographic diagnosis in coronary occlusion and the accuracy of electrocardiographic localization of the infarct.

The 34 cases were classified clinically as shown in Table 1. The electrocardiographic findings in these cases (see Table 2) fall conveniently into three groups. A—characteristically infarct, either anterior or posterior in type, B—block, and C—nonspecific myocardial damage. The criteria for anterior and posterior infarction are those advocated by Barnes and by Wilson (raised RS-T interval in lead I, inverted T_1 , deep Q_1 with small slurred QRS in lead I in anterior infarction, and raised RS- T_3 , inverted T_3 , and deep Q_3 in posterior infarction). All cases of complete

From the medical service of Dr. I. W. Held and the Pathology Department of Beth Israel Hospital.

Approved for publication by The Surgeon General, U S Army, August 11 1941

TABLE 1—CLINICAL MATERIAL STUDIED

	Men	Per- cent- age	Women	Per- cent- age	Total
Number of cases	24	71	10	29	34
Youngest—oldest	35–72		46–76		
Average age at death	57		57		57
Coronary infarct with angina	9	37	0	0	9
Coronary infarct with hypertension	7	29	5	50	12
Coronary infarct with diabetes	5	21	5	50	10

heart block, bundle branch block, or intraventricular block were classified under group *B*. Low voltage or marked slurring of QRS or low-voltage T-waves were classified under group *C*. Tables 2 and 3 show the actual condition found at autopsy corresponding to the various electrocardiographic groupings.

Reference to Table 1 shows that of the 34 patients with fatal coronary thrombosis 10 were women (29 per cent). The average age for the women was the same as for the men—57 years. The coronary thrombosis was associated with diabetes in 5 of the 24 men (21 per cent) and in 5 of the 10 women (50 per cent). The high incidence of complicating diabetes in these women with fatal coronary thrombosis is more than coincidental and appears of definite prognostic import, especially when the incidence of diabetes in these fatal cases (10) is compared with a similar group of nonfatal coronary occlusion cases (3) (see Table 4).

There was a history of previous hypertension in 7 men and 5 women of the 34 autopsied cases. A history of previous angina pectoris was obtained in 9 men but in not a single woman. It is indeed an interesting clinical situation—five women with definite histories of antecedent hypertension dying of coronary occlusion and not a single one with previous angina—demonstrating strikingly the clinical fact that angina is essentially a disease of the male.

We also considered it worthwhile to study the question of glycosuria in these cases of coronary thrombosis, since many observers report the frequent association clinically of glycosuria with acute coronary occlusion in nondiabetics.¹² A review of our 34 cases showed that glycosuria occurred in 9 cases but only in 2 that were not definitely chronic diabetic patients. In 1 nondiabetic case a slight trace of sugar was found in the urine, but the blood sugar was only 100 mg. In the second case a slight trace of sugar was found on only one occasion, but it was negative at all other

TABLE 2—SHOWING ELECTROCARDIOGRAPHIC AND PATHOLOGIC CLASSIFICATION OF CASES

Electrocardiographic	Type— Number of cases	Autopsy		
		Ante- rior	Poste- rior	Anterior and posterior
(A) Anterior infarct	8	8		
Posterior infarct	8		7	1
(B) Bundle branch (left)	4	1	1	2
Intraventricular block	5	4		1
Complete heart block with ventricular tachycardia	1	1		
Heart block with left bundle branch block	1			1
(C) Nonspecific myocardial damage	7	2	1	4
Total	34	16	9	9

times. Our experience, therefore, is that there is no clinical association of glycosuria with acute coronary thrombosis.

Little more than this cursory review of some interesting clinical correlations that we found in our cases is needed when we consider the fine clinical monograms on this subject, such as Levine's¹³ and Levy's.¹⁴ We come then to our main task—the evaluation of the role played by the electrocardiogram in the diagnosis of coronary thrombosis. It is important here to compare the accuracy of the older method of diagnosing coronary occlusion—the clinical—with the newer method alone—the electrocardiographic—and consider, finally, how one method supplements the other. Table 3 is a convenient charting of the clinical diagnosis in each case before the electrocardiogram was taken as compared to the actual autopsy findings. This is contrasted with the electrocardiographic findings per se as compared with autopsy findings. Table 3 shows that of these 34 proved cases of coronary thrombosis 26 were correctly diagnosed on clinical grounds alone while only 16 were diagnosed electrocardiographically as coronary thrombosis. In 12 cases both the electrocardiogram and the clinical diagnosis were correct. In 14 cases the clinical diagnosis was correct while the electrocardiogram was not of specific value. In only 2 cases did the electrocardiogram definitely point to the correct diagnosis of coronary thrombosis in the absence of any clinical evidence, and in 2 more cases the electrocardiogram was mildly suggestive of an acute coronary process in the absence of a positive clinical diagnosis. When clinical impressions were combined with electrocardiographic findings, 31 of the 34 cases were correctly diagnosed, indicating the complementary nature of the clinical and electro-

TABLE 3—SHOWING CORRELATION OF CLINICAL AND ELECTROCARDIOGRAPHIC DIAGNOSES WITH AUTOPSY FINDINGS

No	Clinical Diagnosis Before Electrocardiogram	Correlation with Autopsy	Electrocardiographic Diagnosis	Correlation with Autopsy	Autopsy
1	Ac. coronary thrombosis	+	Anterior infarct	+	Ant. infarct
2	Ac. coronary thrombosis	+	Bundle branch block, left	+	Ant. infarct
3	Ac. coronary thrombosis	+	Anterior infarct	+	Ant. infarct
4	Ac. coronary thrombosis	+	Nonspec. myocard. damage	+	Ant. infarct
5	Ac. coronary thrombosis	+	Anterior infarct	+	Ant. infarct
6	Ac. coronary thrombosis	+	Anterior infarct	+	Ant. infarct
7	Arteriosclerosis—ac. coronary thrombosis	+	Intraventricular block	—	Ant. infarct
8	Ac. coronary thrombosis	+	Heart block with ventricular tachycardia	—	Ant. infarct
9	Ac. coronary thrombosis, bronchopneumonia	+	Intraventricular block	—	Ant. infarct
10	Ac. coronary thrombosis	+	Intraventricular block	+	Ant. infarct
11	Coronary thrombosis	+	Nonspec. myocard. damage	—	Ant. infarct
12	Ac. coronary thrombosis	+	Anterior infarct	+	Ant. infarct
13	Ac. coronary thrombosis, bronchopneumonia	+	Anterior infarct	+	Ant. infarct
14	Ac. coronary thrombosis	+	Anterior infarct	+	Ant. infarct
15	Coronary artery disease and hypertension	—	Anterior infarct	+	Ant. infarct
16	Coronary sclerosis with myocard insufficiency	—	Intraventricular block	—	Ant. infarct
17	Ac. coronary thrombosis, bronchopneumonia	+	Nonspec. myocard. damage	—	Post. infarct
18	Ac. coronary thrombosis	+	Posterior infarct	+	Post. infarct
19	Ac. coronary thrombosis, bilateral bronchopneumonia	+	Posterior infarct	+	Post. infarct
20	Ac. coronary thrombosis	+	Posterior infarct	+	Post. infarct
21	Coronary sclerosis and myocard insufficiency	—	Posterior infarct	+	Post. infarct
22	Hypertension with terminal ac. coronary thrombosis	+	Bundle branch block left	—	Post. infarct
23	Ac. coronary thrombosis	+	Posterior infarct	+	Post. infarct
24	Coronary thrombosis with pulmonary infarct	+	Posterior infarct	+	Post. infarct
25	Coronary artery disease with occlusion	—	Posterior infarct	+	Post. infarct
26	Coronary thrombosis	+	Bundle branch block, left with heart block	—	Ant. and post.
27	Coronary thrombosis with decompensation	+	Nonspec. myocard. damage	—	Ant. and post.
28	Ac. coronary thrombosis	+	Intraventricular block	—	Ant. and post.
29	Ac. coronary thrombosis	+	Nonspec. myocard. damage	—	Ant. and post.
30	Hypertensive cardiac in failure	—	Nonspec. myocard. damage	—	Ant. and post.
31	Coronary sclerosis with ac. coronary thrombosis	+	Bundle branch block left	—	Ant. and post.
32	Coronary sclerosis and thrombosis	+	Nonspec. myocard. damage	—	Ant. and post.
33	Nephritis—hypertension with coronary thrombosis	—	Posterior infarct	+	Ant. and post.
34	Coronary sclerosis	—	Bundle branch block left	—	Ant. and post.

cardiographic findings in coronary occlusion

Reviewing the electrocardiographic findings in these cases (Tables 2 and 3), one notes immediately that there was no case of coronary thrombosis in this series in which the electrocardiogram was entirely normal. In more than half of the cases, however, only some nonspecific form of myocardial damage could be diagnosed, and no definite indication of coronary thrombosis was present. Thus, in fully 11 cases left bundle branch block and intraventricular block were present, covering up in all probability the electrocardiographic changes produced by coronary occlusion. In 6 more cases the electrocardiogram showed myocardial damage but not specifically of coronary configuration. We did not come across any case in which the electrocardiogram was typically that of anterior infarction that pathologically showed posterior infarction or vice versa. In our cases whenever the electrocardiogram was characteristically anterior or posterior infarct in type, the autopsy confirmed the localization. This is in agreement with the report of Barnes¹⁵ and the more recent report of Sprague and Orgain¹⁶ and disagrees with Gilchrist and Ritchie¹⁷ and Smith,

Goodrich, and Needles¹⁸ who have found in several cases inconsistencies in the electrocardiographic localization. We believe that although there is little doubt of the localizing powers of the electrocardiogram when it is of the characteristic acute coronary pattern there is unfortunately little justification for the concept that there is any appreciable difference prognostically between anterior and posterior infarct. We have come to this conclusion by comparing the frequency of anterior and posterior infarcts in the 34 fatal cases here reported with 34 nonfatal cases gleaned from the Beth Israel Hospital files of the same 1929-1939 period (see Table 4). This shows that the group that survived the coronary occlusion was similar to the fatal group with respect to age, sex, previous history of hypertension, and angina. Diabetes was much commoner in the fatal group. Electrocardiographically, however, although the incidence of anterior and posterior infarction is about the same for both groups, the fatal cases much more often showed a low voltage (14 fatal to 5 nonfatal cases), bundle branch or intraventricular block (11 fatal to 1 nonfatal case), and also nonspecific myocardial damage

ELECTROCARDIOGRAPHY

(7 fatal to 3 nonfatal cases) This is probably explained by the fact that the electrocardiogram is more characteristic with a single fresh infarct and, prognostically, this is more favorable than the noncharacteristic electrocardiogram seen in chronic cases with multiple infarcts. This similarity in the prognostic significance of anterior and posterior infarction was also found in the recent report of Smith, Goodrich, and Needles.¹² The distinct advantage that the electrocardiogram has over the clinical examination in coronary thrombosis—the localization to the front or the back of the heart—to the left or the right coronary is thus seen to be largely of academic, rather than practical, prognostic importance.

Table 3 clearly demonstrates the most important single fact to be gleaned from this study—that more than half of the cases of coronary thrombosis in this series failed to show definite electrocardiographic signs of this condition. If the electrocardiogram alone were considered, the diagnosis would have been missed more than half of the time. On combined clinical and electrocardiographic evidence, on the other hand, the diagnosis was made in 91 per cent of the cases. This sounds a clear-cut warning against overemphasis on the electrocardiogram to the exclusion of clinical consideration in the diagnosis and prognosis of coronary thrombosis.

It is important at this point to make some accounting for the low percentage of correct electrocardiographic diagnoses in this series. The most important difficulty is the frequent accompaniment of intraventricular, arborization, or bundle branch block (32 per cent of our cases), which dominates the electrocardiographic picture and suppresses the evidence of coronary thrombosis. Another difficulty is the fact that the classic electrocardiographic tracing of coronary thrombosis is present mainly in the first or second infarction when the heart muscle, aside from the fresh infarct, is relatively normal. After repeated infarctions an indefinite electrocardiographic expression occurs. The same considerations hold in large infarcts involving both the anterior and posterior walls of the ventricle. The electrocardiographic changes produced by the anterior portion of the infarct are largely neutralized by the reciprocal changes produced by the posterior portion of the infarct, resulting in a noncharacteristic picture. With the larger infarcts, too, the septum is often involved, and the resulting intraventricular or bundle branch block covers up the electrocardiographic characteristics of coronary throm-

TABLE 4.—CLINICAL AND ELECTROCARDIOGRAPHIC COMPARISON OF 34 AUTOPSED CASES WITH CORONARY OCCLUSION CASES WHICH SURVIVED

Number of cases	Died	Survived
Men	34	34
Women	24	26
Average age	10	9
With angina	57	57
Hypertension	13	10
Diabetes	10	3
Low voltage (less than 5 mm.)	14	5
Rel low voltage (less than 7 mm.)	6	4
Anterior (T ₁) type electrocardiogram	8	16
Posterior (T ₂) type electrocardiogram	8	12
Combined T ₁ and T ₂ type electrocardiogram	11	1
Block type of electrocardiogram	7	1
Non-specific myocardial damage	0	3
Insufficient electrocardiographic changes to diagnose myocardial damage	0	1

bosis. It is thus seen (Table 2) that of the 25 cases that had single infarcts at postmortem 15 showed the electrocardiographic diagnoses of coronary occlusion, while of the 9 cases with combined anterior and posterior infarcts only 1 gave a typical electrocardiogram [see Case 32, Table 3, which showed posterior (T₂) type electrocardiogram]. In contrast to this, Table 3 shows that in these 9 cases with multiple infarcts the correct diagnosis was made clinically in 6. There appears to be little doubt that a single fresh primary infarct is likely to give the characteristic electrocardiographic picture and also the characteristic clinical picture. With secondary infarcts in chronic coronary sufferers and in long-standing cases, fresh infarction is most often overlooked if only electrocardiographic evidence is sought but will be correctly diagnosed in the majority of cases by clinical evidence alone if the possibility of a new infarction in old coronary sufferers is constantly kept in mind. Translated into practical language this means that if a patient with an old infarction or with coronary sclerosis appears clinically to have had a fresh coronary occlusion and the electrocardiogram shows nothing characteristic of an acute coronary closure the greatest likelihood is that a coronary thrombosis has occurred, and the patient should be treated accordingly.

It may be said in criticism of the above statement that if chest leads as well as the conventional leads were taken the percentage of correct electrocardiographic diagnoses increased¹³ and that, occasionally, serial studies indicate the possible presence of an acute process in the heart which may not be apparent in a single electrocardiogram. It is the uncom-

TABLE 3—SHOWING CORRELATION OF CLINICAL AND ELECTROCARDIOGRAPHIC DIAGNOSES WITH AUTOPSY FINDINGS

No	Clinical Diagnosis Before Electrocardiogram	Correlation with Autopsy	Electrocardiographic Diagnosis	Correlation with Autopsy	Autopsy
1	Ac coronary thrombosis	+	Anterior infarct	+	Ant. infarct
2	Ac coronary thrombosis	+	Bundle branch block, left	+	Ant. infarct
3	Ac coronary thrombosis	+	Anterior infarct	+	Ant. infarct
4	Ac coronary thrombosis	+	Nonspec. myocard. damage	—	Ant. infarct
5	Ac coronary thrombosis	+	Anterior infarct	+	Ant. infarct
6	Ac coronary thrombosis	+	Anterior infarct	+	Ant. infarct
7	Arteriosclerosis—ac. coronary thrombosis	+	Intraventricular block	—	Ant. infarct
8	Ac. coronary thrombosis	+	Heart block with ventricular tachycardia	—	Ant. infarct
9	Ac. coronary thrombosis, bronchopneumonia	+	Intraventricular block	—	Ant. infarct
10	Ac. coronary thrombosis	+	Intraventricular block	+	Ant. infarct
11	Coronary thrombosis	+	Nonspec. myocard. damage	—	Ant. infarct
12	Ac coronary thrombosis	+	Anterior infarct	+	Ant. infarct
13	Ac. coronary thrombosis bronchopneumonia	+	Anterior infarct	+	Ant. infarct
14	Ac. coronary thrombosis	+	Anterior infarct	+	Ant. infarct
15	Coronary artery disease and hypertension	—	Anterior infarct	+	Ant. infarct
16	Coronary sclerosis with myocard insufficiency	—	Intraventricular block	—	Ant. infarct
17	Ac. coronary thrombosis, bronchopneumonia	+	Nonspec. myocard. damage	—	Post. infarct
18	Ac. coronary thrombosis	+	Posterior infarct	+	Post. infarct
19	Ac. coronary thrombosis bilateral bronchopneumonia	+	Posterior infarct	+	Post. infarct
20	Ac. coronary thrombosis	+	Posterior infarct	+	Post. infarct
21	Coronary sclerosis and myocard insufficiency	—	Posterior infarct	+	Post. infarct
22	Hypertension with terminal ac. coronary thrombosis	+	Bundle branch block left	—	Post. infarct
23	Ac. coronary thrombosis	+	Posterior infarct	+	Post. infarct
24	Coronary thrombosis with pulmonary infarct	+	Posterior infarct	+	Post. infarct
25	Coronary artery disease with occlusion	+	Bundle branch block left, with heart block	—	Ant. and post.
26	Coronary thrombosis	+	Nonspec. myocard. damage	—	Ant. and post.
27	Coronary thrombosis with decompensation	+	Intraventricular block	—	Ant. and post.
28	Ac. coronary thrombosis	+	Nonspec. myocard. damage	—	Ant. and post.
29	Ac. coronary thrombosis	+	Nonspec. myocard. damage	—	Ant. and post.
30	Hypertensive cardiac in failure	—	Nonspec. myocard. damage	—	Ant. and post.
31	Coronary sclerosis with ac coronary thrombosis	+	Bundle branch block left	—	Ant. and post.
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THE INCIDENCE OF HEART DISEASE IN THE UNIVERSITY STUDENT AGE GROUP

MURIEL CUYKENDALL, M D , Ithaca, New York

THE university student age group is unique in the study of heart disease. At this age, the rheumatic state has already produced recognizable lesions in practically all susceptible hearts, the severe congenital heart diseases have either terminated or the patients are not ambulatory. On the other hand, the types of heart disease resulting from syphilitic and degenerative changes have not yet developed.

No survey to date has published results on the incidence of heart disease in this age group. Figures are available on many surveys conducted in grade and high-school groups, and the incidence in the adult population has been estimated, but the university age group has been surprisingly neglected.

The cardiac program of the Student Health Service at Cornell University was instituted seven years ago and was extended three years ago to include the men students. The present survey is limited, however, to the 6,489 men and women students in residence during the academic year 1938 to 1939. All the cardiac examinations were made by one physician, myself, and thus the diagnoses and criteria for classification are self-consistent.

Sources of Material

Cardiac examinations were given to the following: (1) Students with a cardiac abnormality discovered on the entering physical examination. This routine entrance examination, about forty-five minutes in duration, with the student stripped, was conducted by some one of the eleven staff members of the Department of Hygiene and Preventive Medicine. As a part of the examination, the heart was tested for its size, for the character and position of the apex beat, and for the presence of a thrill and murmur. The blood pressure was recorded. The rhythm of the pulse was noted, and a cardiac function test was made by having the student perform a standard exercise. Upon the slightest suspicion of heart abnormality the student was referred to me for further cardiac examination. (2) A chest roentgenogram was available at the option of each student for a nominal fee, and in case the cardiac shadow

in this picture was abnormal, the student was given the cardiac examination. (3) Students who consulted the Student Health Service complaining of signs or symptoms referable to the heart were examined for cardiac diagnosis.

The Cardiac Examination

The cardiac examination consisted of palpation, percussion, auscultation, and fluoroscopic examination. A chest roentgenogram in the posterior position was usually made, and supplemental roentgenograms were occasionally made with the student in several oblique positions. An electrocardiogram was usually made. Other laboratory procedures—urinalysis, renal function test, blood counts, sedimentation rate, and basal metabolism—were made when deemed necessary or helpful.

Diagnostic Criteria

Much of the variation in the reported incidence of heart disease is due to a lack of uniform application of a definition of heart disease. Some surveys define organic heart disease as being synonymous with anatomic heart disease. Other surveys include one or more of the subheadings of etiologic or physiologic diagnosis.¹ In particular, incidence variations occur with the inclusion or exclusion of hypertension, psychoneurosis, thyroid diseases, extrasystoles or tachycardia. Other confusions arise from difficulties in the differential diagnosis of borderline organic and functional systolic murmurs.

In this survey the incidence of heart disease is based on the anatomic diagnosis only. The definitions of types of organic heart disease are essentially those established by the American Heart Association. Clarification of certain of the diagnoses was made by rating the intensity of the murmur. Thus, a diagnosis of mitral insufficiency was not made when the intensity of the murmur was less than Grade 2², and a functional murmur was usually less than Grade 2 intensity. The changes in cardiac contour or dynamics characteristic of an organic lesion were always sought by fluoroscopic examination. A diagnosis of lesion was not made unless these accompanying characteristics were observed.

Abnormal processes occurring in the body,

¹Assistant professor of hygiene and attending physician, Cornell University.

mon case, however, that shows characteristic signs of acute coronary occlusion in lead IV and no signs of this in the conventional leads, the average of reports indicating that this situation occurs in only 3 or 4 per cent of the cases. The second situation, where serial changes point to a coronary thrombosis not suspected by single electrocardiogram, is also rare, occurring in only 2 or 3 per cent of the cases. It may be also said in criticism of our published results that many of the electrocardiograms were agonal—terminal—and, thus, are less likely to be diagnostic. A careful review of our cases showed, however, that of the 9 cases in which the electrocardiogram was taken one day or less before death 3 showed electrocardiograms characteristic of coronary occlusion while 6 showed block or nonspecific myocardial damage—about the same average of electrocardiographic diagnostic accuracy in the agonal cases as in those where the electrocardiograms were taken days or weeks before death. Finally, it must not be forgotten that lead IV can be of no added assistance with the two main problems in electrocardiographic diagnosis of coronary thrombosis—the presence of block and nonspecific changes. Although our figures for the frequency of incidence of characteristic electrocardiographic changes in acute coronary thrombosis appear lower than those usually reported, it is not due to the lack of lead IV but to the fact that the cases represent not only primary infarction but secondary and multiple infarctions in old coronary sufferers.

Conclusions and Summary

Review of 34 patients who showed myocardial infarction at autopsy (24 men and 10 women) and who had at least one electrocardiogram taken before death emphasizes several interesting clinical correlations. Hypertension and diabetes were commoner in the women than in the men, while a history of angina was obtained in 9 men and in not a single woman. Glycosuria is only a rare accompaniment of acute coronary occlusion.

The autopsy material included 16 cases of anterior infarcts (left coronary), 9 cases of posterior infarcts (right coronary), and 9 cases of combined anterior and posterior infarcts.

Eight cases of the anterior infarcts, 7 cases of the posterior infarcts, and only 1 case of the combined infarcts were detected electrocardiographically. Thus, only 16 of the 34 cases (47 per cent) were diagnosed by the electrocardiogram alone. The other 18 cases showed left bundle branch block or intraventricular block (11 cases) and nonspecific myocardial damage.

In contrast, the *clinical diagnosis* before the electrocardiogram was taken was correct in 26 of the 34 cases (76 per cent). Using both the clinical and electrocardiographic evidence, the correct diagnosis of coronary infarct was made in 31 of the 34 cases (91 per cent). This emphasizes the prime importance of the history and clinical examination in the diagnosis of this condition, particularly in patients who are sufferers of old coronary thrombosis or sclerosis and who are not likely to have a characteristic electrocardiogram with the repeated infarctions.

The authors are deeply indebted to Dr Isidore W. Held for his invaluable aid in the clinical study of these patients and to Dr Alfred Plaut for the pathologic study.

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ASSOCIATION OF MILITARY SURGEONS

The Association of Military Surgeons of the United States will meet at the Hotel Brown, Louisville, Kentucky, from October 29 to November 1. All members of the medical

profession are cordially invited to attend. The session will conclude with a mass review of military medicine and inspection of Fort Knox.

TABLE 1—CARDIAC DIAGNOSES AMONG STUDENTS, 1939 to 1940

	Men	Percentage	Women	Percentage	Total	Percentage
Cornell registration	4 991		1 498		6 489	
Organic heart disease	54	1 1	45	3 0	99	1 5
Congenital defect	13	0 26	6	0 4	19	0 29
Rheumatic heart disease	41	0 80	39	2 6	80	1 2
A. I *	2		2		4	
A. I and aortic stenosis	2		1		3	
A. I and M I †	1		0		1	
M. I	33		27		60	
Mitral stenosis	0		2		2	
M. I and mitral stenosis	1		7		9	
Subacute bacterial endocarditis	1		0		1	

* Aortic insufficiency

† Mitral insufficiency

0.5 per cent in grade-school to 0.9 per cent in high-school children. The incidence in men of military age is 3.0 per cent.¹⁰ In the present university age group, most of whom are between the ages of 17 and 22 years, the incidence is 1.2 per cent. This agrees well with the scattered figures of other surveys.

Sex—A greater incidence of rheumatic heart disease obtains in women than in men. The ratio as reported in other surveys¹¹ has never been more than 4:3. The ratio of 3.2:1 in this survey is therefore striking. Arguments to rationalize the high rheumatic sex ratio in terms of the specialized university group are not satisfying. The increase in the rheumatic state which occurs in girls during adolescence is not sufficient to account for the high ratio.

There are 3.3 times as many men as women students in residence at Cornell University. Men acquire rheumatic heart disease less frequently than women. Thus, the incidence of heart disease in this particular group is lessened because of its sex distribution.

Economic Environment—The incidence of rheumatic heart disease is relatively high in people in a low economic bracket. Raugh¹² classified the incidence of acquired heart disease in school children according to the economic status of the parents. He found the incidence of heart disease to range from 0.32 per cent in the children in the lowest quartile to 0.063 per cent in the children in the highest quartile income bracket.

Wide variation exists in the economic background of the students attending Cornell University. The average level is undoubtedly higher than that of the population as a whole.

Climate—Rheumatic heart disease is more common among people living in a cold climate than among those living in a warm climate. The climate variation was measured by Paul¹³ who made a survey of two groups of North American Indian children, one group living in Wyoming and the other in Arizona.

We assume that Indian hearts are similar to hearts of the white race. In the two Indian groups the factors which affect the rheumatic state were present to a remarkably similar degree except for the climate which in Wyoming was the colder. The children who lived in Wyoming had ten times as much rheumatic heart disease as did those who lived in Arizona.

Race—Rheumatic heart disease occurs less frequently in the negro than in the white race.¹⁴ Less than 25 of the 6,489 students were of the negro race and none of these had heart disease. The number of negro students in this survey is too small to be of statistical value. No effort was made to estimate the incidence in other races.

Comment

The findings of this survey suggest comparison with surveys on other groups of the same age, particularly with students in residence at other universities, and with corresponding ages in other groups in the northern part of the United States. No reports on such surveys are available. However, one may generalize on the expected incidence of heart disease in such groups relative to the incidence at Cornell University.

Of the five known factors which influence the incidence of rheumatic heart disease, possibly two are common to the students of most universities, i.e., the age group and the economic background. The factors which cause the incidence to vary in another university are its location, the proportion of men to women students, and the race distribution. Since these factors cause appreciable variation, a wide range in incidence in university student groups may be expected.

Considering the average economic status, the proportion of men to women, and the proportion of the Negroes to the whites, we conclude further that the incidence of heart disease in the same age group of the general population in the northern part of the United

in regions other than the heart may give rise to signs and symptoms which are referred to the heart. These processes are not considered to be heart disease in this survey. They are noted here for reference purposes.

Hypertension—Hypertension is present when the student's systolic blood pressure is above 140 or the diastolic pressure is above 90 mm Hg. Effort was made to put the student at ease during the examination, and the lowest blood pressure reading of repeated visits was used. Sampson in his study of 16- to 18-year-olds found 10 per cent with hypertension, 64 per cent of whom were boys.² Among the university students of the present study, hypertension was present in only 4.5 per cent of the men and 0.45 per cent of the women students. Comparison of the results of these two surveys proves the need for a standard procedure and technic in making blood pressure readings.

Psychoneurosis—A psychoneurotic basis for symptoms of heart disease was found in 0.2 per cent of the university students, no sex difference was present. The complaints made by the students to the Health Service Office were precordial pain, palpitation, dizziness, fainting, tachycardia, and extrasystoles. Precordial pain occurred frequently in students who feared disease, a fear often caused by a recent cardiac death in the family.

Thyroid Disease—Mild but insignificant changes in the heart due to hyperthyroid or hypothyroid conditions were observed in several students.

Extrasystoles—Premature beats are of common occurrence. They have no effect on the student other than to arouse slight apprehension concerning the heart.

Possible Heart Disease—The diagnosis of possible heart disease was not used in this survey. A definite diagnosis either of heart disease or of no heart disease was made in every case. Borderline cases and suspected cases with evidence inadequate for classification as heart disease were considered to have no heart disease. Such arbitrary diagnosis of heart disease, although not permissible in medical practice, was necessary in a statistical survey. The opinion of the physician was accepted as statistical fact.

Potential Rheumatic Heart Disease—Two surveys were recently published dealing with cases of potential rheumatic heart disease on which observations had been taken during a ten-year period. One of these surveys reported on patients whose onset of potential rheumatic heart disease occurred at about 8 years of age.⁴ Of this group 25 per cent developed a permanent valvular deformity by the age of 18 years. The other survey reported on patients whose age of onset was approximately 14 years of age.⁵ Less than 5 per cent of this group had developed such a deformity at the age of 24 years. Both surveys noted that

the transition to active involvement occurred predominantly during the years closely following the onset of the potential disease. A comparison of these surveys reveals a progressive decrease with age in resultant valvular deformity following the rheumatic state.

The final ages of the groups observed in the two surveys mentioned in the previous paragraph agree well with the age group of university students. Thus, it is logical to assume that the probability of a potential rheumatic heart disease becoming a manifest lesion during the university age or after is very small. Therefore, to include potential rheumatic heart disease as an organic type of heart disease at the university age is to swell unduly the total organic heart disease incidence.

Functional Systolic Murmur—The functional systolic murmur merits special attention because of its close similarity to slight mitral involvement. The prevalence of confusion in these two diagnoses is evident from the fact that the mortality for life insurance entrants with a functional systolic murmur is higher than the mortality for standard lives.⁶

This pseudo disease, most difficult to diagnose, is common and was found in 3.1 per cent of the men and 9.3 per cent of the women students.

Results

The diagnosis of organic heart disease in this survey was limited to the anatomic diagnosis of changes in heart structure. This diagnosis was made in 1.5 per cent of the Cornell students: 1.1 per cent of the men and 3.0 per cent of the women. The distribution among the types of disease is indicated in Table 1. The rheumatic type comprised 82 per cent of the organic heart disease and was present in 1.2 per cent of the students. The mitral valve was involved in 90 per cent of the rheumatic hearts. Rheumatic heart disease was present in 2.6 per cent of the women and 0.8 per cent of the men, a ratio of 3.2 to 1.

Discussion

The incidence of rheumatic heart disease, the most common type of heart disease among the students, is affected by age, sex, economic environment, prevalence of the rheumatic state in the family or environment, and race. A qualitative analysis of these factors in relation to this university group is in order.

Age—The incidence of rheumatic heart disease increases with age. In school children in New York State this incidence is 0.5 per cent,⁷ and in Boston school children, 0.52%. Cahan⁸ found the incidence to increase from

THE MEDICAL DIAGNOSIS OF MENTAL DEFECT

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THE diagnosis of mental defect may be made on the basis of one or a combination of three factors of identification—namely, the existence and nature of the retardation in intellectual growth, the description of the syndrome presented, and the analysis of the causal or etiologic agents responsible for the production of organismic defect. In the early history of the diagnosis of mental defect, identification of defect was made by the physician. During the more recent periods of diagnosis, the physician's diagnosis has been supplemented to increasing degree by contributions from the educator and the psychologist. These contributions are especially valuable in the study of high-grade and borderline types of defectives in relation to the problems of commitment, re-education, and general socialization. Among the contributions of the psychologist the intelligence test results have received special emphasis, but there is growing unanimity of opinion that the diagnosis of mental defect is to be determined by more than an I Q rating alone. This "more than an I Q" is included by diagnosticians under the term "composite classification," which considers the physical and behavioral elements of the patient's experience, as well as the summarized results of the measurements of partial factors of intelligence. In order to make the "composite classification" clinically significant, it is still the physician who is called to make the general diagnosis of mental defect, upon the basis mentioned above, and he can do so with much more detailed assistance than was available to him during the earlier days of diagnosis.

The consideration of the composite or general classification requires the review of biologic and sociologic factors involved in any given case. Many of us believe that the condition of so-called "true mental defect" arises fundamentally from distortion in the vast understructure of organic and psychobiologic organization of the individual regardless of either circumscribed or extensive effects of the environmental forces. The question may be asked "If it were possible to remove the es-

entially subnormal germ plasm from the general population, how much mental defect would remain?" Many would reply that with the removal of the hereditary taints, a large percentage of the so-called "true mental defect" would disappear. This would no doubt also obtain, to an unknown extent, for other conditions of arrest in mental development—as, for example, certain cases of the "temperamental deficiencies" mentioned by Burt and others. Instances of mental defect not included under the hereditary types and in which organic factors are basic would represent individuals who have become defective because of agents that have destroyed or damaged living tissue (the so-called secondary types). Still other types of defect are represented by those who suffer from disabilities that may or may not be due to definite alterations in physiologic activities. Emphasis upon the basic importance of the organic groundwork of mental defect does not mean for one moment that environmental forces may not strongly contribute to the intensifying of defects in the growth of the organism. Furthermore, in reference to certain persons of borderline intelligence, environmental adversities may throw the person under the technical classification of mental defect. This question still remains, however "Why is it that the person originally was to be found in the 'borderline' or 'dull normal' state of intelligence?" In short, we might conceive of the diagnostic problems of mental defect in a somewhat allegoric manner by saying that mental defect represents a vast storm of social problems whirling upon a deep ocean of organic crosscurrents.

The physician can readily identify certain conditions associated with mental defect such as those of mongolism, cretinism, or phenylpyruvic oligophrenia. For this purpose he has at his disposal the beginning of a helpful classification system—namely, that as found in the *Standard Classified Nomenclature of Disease*. This classification has gone a long way in organizing a more adequate system for the medical identification of mental defectives. It needs further revision, however, as both descriptive and etiologic factors are used somewhat interchangeably. For example, the diagnosis of "000-071 mongolism" is purely descriptive in nature, the etiologic diagnosis

Read at the Northeastern Section Meeting of the American Association on Mental Deficiency held at Mansfield State Training School, Mansfield Depot, Connecticut September 28, 1940

Director of research, State of New York Department of Mental Hygiene, Letchworth Village

States will be greater than that of the university students

Summary

In the university student age group the rheumatic state has already produced anatomic change in practically all hearts susceptible to this change but the syphilitic and degenerative heart diseases of middle life have not yet occurred. A survey of the incidence of heart disease was conducted among the 6,489 students in attendance at Cornell University during the academic year 1938 to 1939.

In previous surveys wide variations in the incidence of heart disease result from lack of uniformity in the compilation of material. Some surveys include one or more of the various subheadings of etiologic or physiologic diagnosis. Further variation in the reported incidence is due to confusion in the differential diagnosis of borderline organic and functional systolic murmur. In the present survey the anatomic diagnosis is considered to be the only diagnosis of organic disease. However, certain of the etiologic and physiologic diagnoses with their incidence among Cornell University students are briefly noted so as to make possible a comparison with those surveys which include these additional conditions.

Organic heart disease was diagnosed in 15 per cent of the Cornell students, i.e., 10 per cent of the men and 30 per cent of the women. The rheumatic type of heart disease comprised 82 per cent of the organic heart disease in this group and was present

in 12 per cent of the students. The mitral valve was involved in 90 per cent of the rheumatic hearts. Rheumatic heart disease was present in 26 per cent of the women and 0.8 per cent of the men students, a sex incidence ratio of 3:1.

Rheumatic heart disease is the most common type of heart disease present among the Cornell University students. Factors that are known to influence rheumatic heart disease—namely, age, sex, economic environment, prevalence of the rheumatic state in the community, and race—are found in general to exert the expected influence. An exception, however, is the influence of sex: the ratio of three times as much rheumatic heart disease among the women students as among the men is much greater than in any previously reported survey.

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HELPMEET

"I'm sorry, but the doctor's out,
From what you've told me, there's no doubt
Your boy has measles—you must keep
Him in the dark, and let him sleep
Where it is warm—perhaps a spoon
Of oil—the doctor will come soon."
Now was she right? Would he take pride
In such a helpful little bride?
She welcomed him with beaming face,
And cried, "Sweetheart, another case
Were my suggestions all correct?
Has Johnny got what I suspect?"
The doctor's face was long and sad
"Your diagnosis was not bad,
The treatment's recommended, too—
But what is left for me to do?"

Sequel

Since then, his knowledge has increased,
And hers has wisely all but ceased
Ernestine Mercer, Medical World

T.B. PATIENTS UNDER POLICE GUARD

Under police guard, 26 men and 10 women are being treated for tuberculosis in a wing of the Philadelphia Hospital for Contagious Diseases. There is a policeman standing at the door day and night to see that they do not run away from the city's beneficence, reported *The NT 1 Bulletin*, March, 1941.

These patients are being subjected to compulsory hospitalization under a 30-year-old state law, which for the first time is being invoked in the city's war on tuberculosis.

They were "sentenced" to treatment at the hospital by Judge Charles L. Brown of the Municipal Court. The complainant was the division of tuberculosis of the city department of health.

In each case an agent of the division testified that the defendant repeatedly disobeyed orders to place himself under medical supervision and observe certain hygienic safeguards.

Diagnosis

CLINICOPATHOLOGICAL CONFERENCES

FOURTH MEDICAL DIVISION OF BELLEVUE HOSPITAL

History

The patient was a 53-year-old colored man, admitted on May 15, 1941, complaining of severe precordial pain, dyspnea, orthopnea, and swelling of the ankles. Until three years ago the patient had apparently been in good health. At that time he noted ankle swelling that prevented him from working. Since then he had had occasional episodes of paroxysmal nocturnal dyspnea and ankle edema. One year ago the patient noted the onset of exertional dyspnea and consulted an L. M. D. (local physician) who told him that he had a weak heart. Three weeks prior to admission while climbing the fifth of five flights of stairs, he experienced a sudden severe precordial pain described as "a heavy pressure over the breast bone," the pain lasting for twenty-four hours until relieved by a hypodermic injection. Vomiting occurred shortly after the onset of pain. With the disappearance of the pain he became dyspneic and slightly orthopneic and felt weak. During this three-week interval the patient was apparently digitalized, was given intravenous injections for instituting diuresis, but was not given complete bed rest. Three days prior to admission the patient had a return of the substernal pressure, which continued until the time of admission. The past history revealed that the patient had drunk 1 pint of whiskey per day for the past ten years until three months ago.

The patient was a middle-aged, well-nourished, well-developed colored man, dyspneic, and slightly orthopneic and appeared moderately acutely ill. The temperature on admission was 99.4 F, pulse, 120, respirations, 30, and blood pressure, 130/110. An examination of the head and scalp was negative. The pupils were equal and reacted to light and accommodation, the extraocular movements were normal. There was a small perforation of the nasal septum. The tongue was coated and had smooth edges, and the oropharyngeal mucous membranes were normal. There was no distention or pulsation of the neck vessels. The trachea was in the midline, no tug, the thyroid was not enlarged. The lungs were moderately dull at both bases

with moist rales and diminished breath sounds. The heart was enlarged to the left. The point of maximal impulse was in the sixth interspace in the anterior axillary line. The sounds were weak and rapid, with occasional extrasystoles. The second pulmonic sound was equal to the second aortic. The abdomen was slightly distended and nontender, and the liver edge was soft and three finger breadths below the costal margin. There were no other organs or masses palpable and no ascites. The genitalia were normal male. The reflexes were physiologic, the extremities showed 4 plus ankle edema to 1 plus at the knees.

The blood pressure on admission was 146/110, it gradually fell to 104/84 during the third week and continued at about this level until the time of death. The patient's temperature remained about 101 F during the first week, at the end of which time the erythrocyte sedimentation rate was 52 mm per hour, the blood nonprotein nitrogen was 34, and the blood sugar was 78. The urine showed a concentration to specific gravity of 1.024 with 2 plus albumin, which cleared in four days, with an occasional granular cast, red blood cell and 5 to 7 white blood cells. During the second week the patient's temperature was never above 100.2 F. For the next seven weeks the patient ran a daily spiking temperature ranging between 99.6 and 103 F, rising rapidly at the time of death—the tenth week. The pulse corresponded to the fluctuation in temperature ranging between 70 and 120 per minute. The physical findings were essentially as on admission. It was noted that there was gallop rhythm, poor and feeble heart sounds with a systolic at the apex, and enlargement at the apex moderately to the left. The congestive signs disappeared by the eighth week when the liver was no longer palpable and there was no peripheral edema. Repeated blood counts showed the white cells never to be above 10,900, the polymorphonuclears were never above 76 per cent. The red cells ranged between 4,260,000 and 5,400,000. On June 30 the patient was put on a course of sulfapyri-

being unknown at the present. In another instance, the diagnosis "000-077 with developmental cranial anomalies" indicates only that the mental deficiency may be found to be concomitant with hydrocephalus but not necessarily that the deficiency may be directly due to the hydrocephalus. In still another instance, the diagnosis of "000-077 with endocrine disorder" means that the mental deficiency may be found concomitantly with the endocrine disorder but does not indicate whether the mental deficiency may be directly due to the endocrinopathy or whether the mental defect may represent an expression of a more generalized deficiency of which both the mental and endocrine defects are part-manifestations. Despite the fact that this classification system needs further differentiation, physicians in state or private medical practice are urged to employ this system, at least experimentally, so that out of increasing diagnostic experience in the field of mental deficiency a more adequately descriptive and a more analytic-etologic system may emerge.

The medical diagnosis of mental defect also includes the analysis of so-called "social deficiencies." The physician has a right to include such considerations in his final diagnosis of mental defect primarily through psychiatry, which is an extension of medicine into the field of social science. The word "mental" throughout centuries and throughout the works of present-day investigators into the phenomena of mind has connoted not only elementary physiologic expressions of action

but also those of thinking, will, feeling, emotion, temperament, and character. It is becoming increasingly clear that individuals may exhibit arrests not only in the development of intellectual processes but also in the growth of other integrations of mind. Social deficiencies may thus arise from defects in the ability not only to conceptualize in the terms of name and form but also to evaluate in the terms of social relationships. Ability to do the latter is constantly influenced not only by cognitive forces but by all of the integrations of mental functioning, including the conative and emotional.

It may thus be seen that the medical diagnosis of mental defect depends upon factors both within and adjacent to the field of medicine, that the medical interpretation of mental defect is determined by the clinical training and experience of the physician, and that a physician in diagnosing, and even in treating, mental defect needs the assistance of properly qualified professional workers from specialties within medicine itself and from fields such as psychology and education. If the physician is to improve his diagnostic work in mental deficiency, he must establish more adequately his evaluations of arrest in development, whether in reference to physical, conative, emotional, or character qualities of mental organization. The medical diagnosis of mental defect, therefore, is not a simple matter but includes a general recognition of basic underlying organic defects upon which innumerable social influences may act to confuse and arrest the efforts of the organism to mature.

SYPHILIS AMONG SELECTEES

The Division of Venereal Diseases of the United States Public Health Service announced on June 12 that unpublished analyses of serologic and clinical examinations of 1,070,000 selectees and volunteers, as of April 15, 1941, indicate a total of about 48,500 cases of syphilis. For white selectees and volunteers for whom reports were submitted the rate was 18.5 per thousand, for Negroes, 241.2 per thousand. —J.A.M.A.

NO TWO ALIKE

Were all men built to a stock pattern so that they responded to physical agents or bacterial infections in regular fashion according to their peculiar constitution, the practice of medicine would be a simple business. All men, however, are like contrary women of whom the comedian sang "You never see two alike any one time and never see one alike twice." —Quincy Med Bulletin

PREVENTION OF MENTAL ILLNESS

Many personality difficulties begin as rather simple reactions to ordinary life situations that should be recognized by any physician. If these were recognized they could be corrected in a great number of instances, provided the physician and surgeon treated the patient as a total personality rather than as the mere host to innumerable organs and functions. The real pre-

vention of mental ill health lies in the hands of the family physician, internist, and surgeon to whom the patient first goes for help, not in the hands of the psychiatrist specialist.
—Edward G. Billings, M.D., of the Psych. Liaison Dept. of the Univ. of Colorado School of Med., in an address before the Wisconsin State Medical Society

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dine with a slight diminution in the febrile state, receiving then a total of 15 Gm Sulfapyridine was again started eight days before death, then being given in $\frac{1}{2}$ -Gm doses. During the last two weeks the patient became progressively weaker and more dyspneic, and episodes of paroxysmal tachycardia were noted. In the last five days the patient's temperature gradually rose to 107 F at the time of death, with a heart rate of 150. During the last week the urine again showed 2 to 3 plus albumin concentrating to specific gravity of 1.025. The blood sulfapyridine levels were 6.7 and 9.4, respectively. The icteric index on July 2 was 9, a blood culture taken on this day was negative. Agglutination tests for the typhoid group were all negative. A roentgenogram of the chest taken on July 17 showed the heart to be markedly enlarged in the transverse and longitudinal diameters, with accentuation of the left ventricular curve due to considerable left ventricular hypertrophy. There was present hypervascularization throughout both lungs. The electrocardiogram on admission showed inverted T₁, T₄ with depressed R-T segment in lead IV, with a sinus tachycardia and left axis deviation. Subsequent serial electrocardiograms showed inverted T of the seagull type in leads I and IV with return to the base line of the S-T segment in lead IV and again became depressed during the fourth week to return to the base line after three more weeks, at which time the T₄ became upright. A left bundle branch block and occasional premature contractions of nodal origin were noted during the seventh week. The patient received, in addition to symptomatic treatment, mercupurin.

Discussion

DR. MAX TRUBEK: It was logical to assume that this patient had a pre-existing hypertension and that the preceding symptoms of congestive failure were on the basis of myocardial insufficiency due to hypertrophy. The left ventricle showed considerable enlargement and, in the absence of valvular disease or of a preceding story to suggest the presence of widespread coronary sclerosis, hypertension was left as the most logical etiologic factor. It is a common finding in the Negro race. The initial episode of the present illness, characterized by prolonged precordial pain with accentuation of the manifestations of cardiac failure, certainly point to coronary insufficiency and, as subsequent events showed, to myocardial

infarction. There was not, however, the expected restitution of cardiac function or a drop in temperature such as would be expected after a usual episode of myocardial infarction. There was a persistence of the tachycardia with apical gallop rhythm, progressive decline in blood pressure and pulse pressure, maintained elevation of the erythrocyte sedimentation rate, and continued elevation of the temperature over a period of five weeks. An attempt was made to correlate these findings by surmising the presence of a large mural thrombus associated with the necrotic myocardium. Previous experience suggested this possibility as a cause particularly for the maintained fever that was otherwise not explainable. There was a terminal abrupt rise in temperature which was considered due to pulmonary hypostasis in a patient already moribund. No examination of the fundi oculi was recorded which might have confirmed our impression of a long standing hypertension, although the elevated diastolic pressure present at first was adequate confirmation. The question of a syphilitic aortitis and stenosis of the coronary ostia was ruled out as a clinical possibility in the differential diagnosis.

DR. CHARLES H. NAMMACK: Historically, clinically, and electrocardiographically this case was one of failure of the cardiovascular dynamics. We have frequently seen cases of perforation of the nasal septum which were not confirmed by positive serology as being syphilitic.

DR. TRUBEK: We have seen several cases on this service in which there have been electrocardiographic changes, indicating coronary occlusion with myocardial infarction, which ran a prolonged febrile state and subsequently at autopsy showed mural thrombus without embolization. In myocardial infarction with healing, the temperature remains persistently high for the first to second week and then gradually returns to normal with a later corresponding decrease in the erythrocyte sedimentation rate. However, I feel that the diagnosis of mural thrombus following extensive myocardial necrosis was the best possible diagnosis in this case, in spite of the fact that the patient continued a daily spiking temperature with little or no response to sulfapyridine.

DR. ARNOLD KOFFLER: It is possible that this patient had an infarction in the posterior wall of the left ventricle with involvement of the septal portion with production of bundle branch block. This patient may have had

multiple small acute occlusions that at autopsy might not have been evident except as demonstrated by the injection method of Blumgart and Schlessinger. The temperature, which was atypical of infarction per se, may be explained on the basis of necrosis of the infarct or, failing thus, it may have been from some cause that has not yet been demonstrated in this case.

DR. HENRY C. FLEMING One might have suspected the possibility of syphilis as the etiologic factor in this case. There was no evidence for either coronary ostial stenosis or aortic regurgitation. I believe that this was a case of myocardial infarction rather than that of mere occlusion. The fact that the erythrocyte sedimentation rate remained elevated and that the electrocardiogram showed only the changes characteristic of an initial insult to the myocardium led us to believe that there were no subsequent infarctions of the myocardium. The temperature typifying coronary occlusion falls with healing, and this process usually occurs within a few weeks. Patient showed no response to chemotherapy. Because of the septic state in this patient one might think that there was a thrombophlebitis of some part of the body. Thrombophlebitis is sometimes missed at autopsy. The white blood count does not tell us anything about an infectious process, the erythrocyte sedimentation rate does tell us much more.

DR. ARTHUR L. WASHBURN There was no evidence of syphilitic involvement of the cardiovascular system. However, syphilis could be present in spite of a negative blood Wassermann. A large group of syphilis patients in the tertiary state show negative blood Wassermann reactions.

DR. MENNASCH KALKSTEIN Another possibility to be entertained is a mural thrombus attached to the interventricular septum and extending into the right, as well as the left, ventricle, giving rise to repeated small emboli to the lungs.

DR. TRAUBEK Right ventricular thrombus is a rare condition.

DR. WASHBURN Emboli should show in the x-ray.

DR. KALKSTEIN Minute emboli are frequently overlooked.

DR. HARRY A. SOLOMON The outstanding point in this case was the toxic, progressively failing heart. It would have been possible for this patient to have had an aneurysm of the left ventricle or some other intrinsic heart lesion. However, I feel that this patient had a myocardial infarction leading to myocardial

necrosis and cardiac failure. I think, clinically, that there was no other cause for the toxic, remittent state than absorption from a necrotic myocardium. By administering sulfapyridine, we attempted to take the load off the heart by reducing the fever. This case began as one of left failure subsequently going into right failure followed by prolonged fever. This is not the first time that we have seen such cases.

Presentation of Pathology

DR. MAX-WILHELM JOHANSEN At necropsy the interesting findings were confined to the heart, which weighed 540 Gm. The pericardium was thin and smooth, and its cavity contained about 75 cc of dark fluid. The endocardium of the right auricle and ventricle and that of the left auricle was thin, smooth, and glistening. The myocardium of these chambers was of normal thickness and light brown in color. The tricuspid, pulmonary, mitral, and aortic valves were thin and delicate and appeared functionally competent. On examining the left ventricle it was seen to be greatly hypertrophied and dilated. On the posterior external aspect was a pale yellow area covering nearly the entire inferior half of the ventricular wall. On examining the interior of the left ventricle, a large mural thrombus was found on the posterior wall, bulging into the lumen of the chamber. In places, this thrombus was deep red, in other places, pale. It was fibrinous throughout and could be separated only with difficulty. On section of the myocardium it could be seen that there was extensive infarction and necrosis and fibrosis of the posterior wall of the ventricle, this process extended down to include the apex. The coronary ostia were patent, careful examination of all the coronary arteries revealed no stenosis or occlusion adequate to explain the infarction, but the vessels were of an extremely fine caliber and were barely traceable after the midportion of the heart. The remainder of the organs showed, except for chronic passive congestion, no noteworthy changes.

Clinically, as far as I can see, there was no doubt that the patient had a myocardial infarction. The point of primary interest rests in the cause for the prolonged spiking temperature. You have heard in the description of the necropsy findings that the myocardial infarction was found but that there was no evidence of coronary occlusion. The patient had a poorly developed coronary circulation, the major branches being barely traceable in

the lower half of the heart. When this patient developed myocardial hypertrophy, the coronary circulation became inadequate. The major physical exertion of climbing five flights of stairs could very well have produced acute coronary insufficiency with myocardial ischemia and subsequent necrosis.

As to the second point of interest, the clinicians tried to explain the prolonged temperature on progressive myocardial infarction. True enough, myocardial infarction may give rise to a fever, but this fever rarely lasts more than seven days. Progressive infarction could naturally prolong the elevated temperature curve. But the important differentiation between this patient's temperature and the one seen in myocardial infarction is the fact that the spiking temperature exhibited in this case was evidence of a bacterial infection, whereas myocardial infarctions have a sustained elevated temperature. Furthermore, progressive myocardial infarction would exhibit progressive electrocardiographic changes, which, if I am correct, were not present in this case. I believe we have demonstrated that myocardial infarction could not very well have been the cause for the spiking temperature and that we have deducted a bacterial infection to be the underlying factor. This bacterial infection was found at microscopic examination to be an acute hematogenous tuberculosis involving the lungs, liver, and spleen.

During the last three years I had occasion to observe 3 cases in which old people—1, 87 years of age, the others, 71 and 69 years, respectively—at necropsy showed acute hematogenous tuberculosis involving many of the parenchymal organs. The first case at necropsy presented easily recognizable miliary tubercles throughout the parenchymal organs. It took us three hours to demonstrate the source of dissemination. The only, and I stress the only, caseous necrotic focus was one lymph node surrounding the thoracic duct at the level of the first lumbar vertebra. This lymph node had perforated into the thoracic

duct, and this caused the acute lymphohematogenous dissemination. The second case suffered for five years from pain in the lower part of the back which was diagnosed repeatedly as hypertrophic osteoarthritis of the lower spine. In this case at necropsy, the only demonstrable caseous necrotic area was found to be the second lumbar vertebra, which served as focus for an acute hematogenous dissemination. In the third case, a caseous necrotic prostatitis was the course from which the tubercle bacilli found their way into the blood stream. Clinically, in the first 2 cases the diagnosis of miliary tuberculosis was missed completely, whereas in the third case a tuberculous meningitis revealed the true character of the underlying pathology—but, even here, the focus of dissemination was not determined until necropsy. In our case we were unable to demonstrate a caseous necrotic focus that could have given rise to the hematogenous dissemination, but no doubt it existed. We just missed it.

In concluding, I should like to say that it is naturally difficult to make the diagnosis of miliary tuberculosis in the absence of obvious pulmonary tuberculosis but that its occurrence is by no means rare in the old-age group.

Anatomic Diagnosis

- | | |
|------------------|---|
| <i>Primary</i> | Myocardial infarction due to coronary insufficiency |
| | Acute hematogenous tuberculosis involving lungs, liver, and spleen, primary focus unknown |
| <i>Secondary</i> | |
| <i>Heart</i> | Left ventricular hypertrophy and dilatation, moderate coronary atherosclerosis, moderate pericardial effusion, mural thrombus, left ventricle |
| <i>Lungs</i> | Pulmonary edema and congestion, acute bronchitis, right, fibrous pleural adhesions right |
| <i>Aorta</i> | Moderate atherosclerosis |

For the most part, American doctors are determinedly opposed to this drive for socialized medicine, and I must say I am with them all the way. State medicine, in my opinion, bears disaster for doctor and patient alike. You cannot pipe out medicine to the community as you do with steam heat.—Dr. A. J. Cronin, English Author of "The Citadel"

According to *Science Service*, the U. S. Navy is shipping to Cuba a new 500-bed mobile hospital that will be rushed to any outpost in the Western Hemisphere where American fighting forces may need hospital care. The staff will include thirty medical officers and 300 enlisted men of the Navy.

—*Journal of the Kansas Medical Society*

Abstracts of Proceedings

of the

NEW YORK PATHOLOGICAL SOCIETY

COMBINED MEETING WITH SECTION ON OBSTETRICS AND GYNECOLOGY, SECTION OF PEDIATRICS, THE NEW YORK ACADEMY OF MEDICINE, AND THE NEW YORK CITY COMMITTEE ON PREMATURITY, APRIL 22, 1941

DR FRANK R SMITH, *Chairman, Section on Obstetrics and Gynecology*

DR JEAN OLIVER, *President*

DR JOHN M PEARCE, *Secretary*

The Pathology of the Premature Infant

The pathology of the prematurely born infant constitutes but one chapter in human pathology. Except for certain disease states conditioned by the immaturity of the organism and by the factors peculiar to intrauterine existence and the act of delivery, pathologic changes in the prematurely born baby are much the same as those in the full-term neonate and in the older individual. No satisfactory statement can be made concerning the cause of death unless a complete gross and microscopic postmortem examination supplemented by indicated bacteriologic and even chemical studies is carried out, no matter what the size of the infant. Prematurity is not an acceptable cause of death. Anatomic immaturity of organs and tissues—such as may be demonstrated, for example, in the lungs, central nervous system, the pancreas, and the kidneys—may be correlated with recent physiologic studies and should indicate the direction for further important research.

Pathologic changes may be divided into those that characterize the neonatal and the postnatal periods. For the purposes of this discussion a lantern-slide demonstration is made of gross and microscopic alterations in the prematurely born infant with particular reference to (1) atelectasis, the cause of which must be demonstrated in every case, (2) aspiration of contents of the amniotic sac, (3) hemorrhage, gross or petechial in character, occurring mainly in the central nervous sys-

tem, lungs, gastrointestinal tract, and skin,

(4) acute infections, such as pneumonia, occurring secondary to aspiration of infected amniotic sac contents, omphalitis, and skin infections or after exposure to infections of the upper part of the respiratory tract after birth, and (5) congenital anomalies. Attention is paid to several special questions. Chronic inflammatory process may be present at birth as a mark of intrauterine infection. Kernicterus occurs more frequently, erythroblastosis fetalis less so, in the premature than in the full-term infant. Pulmonary edema is an important cause of death of both the premature neonate and the older premature infant.

A few general suggestions appear to be pertinent to this discussion. The pathology of the premature infant should be regarded not as a task to be relegated to a young clinician marking time while waiting for a clinical appointment or to the most inexperienced member of the department of pathology but as one of the important and intriguing divisions of human pathology. Postmortem examination, pathologic interpretation, and research in this field are among the many responsibilities of the trained pathologist. Advances can be made only on the basis of knowledge concerning the anatomic and physiologic peculiarities of the prematurely born infant and familiarity with the obstetric and pediatric problems involved.

The Chicago Plan for the Reduction of Infant Mortality Dr Edith L Potter (*by invitation*), Chicago

For the past several years the members of the medical profession and the Health Department in the City of Chicago have carried

on an active program designed to lower the infant mortality rate. Early in the program, an extensive autopsy study of infants less

than 1 year of age was instituted in order that accurate information concerning the relative importance of various factors causing death might be available for a basis on which to plan a course of procedure. This study is still in progress and is a valuable educational portion of the program. Prematurity, birth trauma, and infections are the three major fields into which effort has been directed.

Approximately two-thirds of the infants in Chicago who succumb under 2 weeks of age and over one-third of all of those who die under 1 year of age are premature at birth. The care of premature infants has been improved, and for several years all have been housed in adequately equipped and conducted nurseries until normal birth weight has been attained and until they have demonstrated their ability to maintain an independent existence in a world devoid of incubators, oxygen, and other special appliances.

The second most common cause of death is birth trauma and, in an attempt to cope with this problem, measures designed to modify in some degree the practice of obstetrics have been instituted. The most important was the establishment by the hospitals of definite obstetric staffs and the provision for consultation for doctors who are

not specialists in obstetrics. An attempt has been made to improve the general level of obstetric practice through various educational channels.

Infections are an important cause of stillbirths and maternal deaths as well as of infant deaths. Measures directed toward limiting the possibility of infection of the mother during or after delivery and of the infant after birth consist in the required isolation from the rest of the hospital of obstetric and newborn units and the maintenance in each of a strictly aseptic technic.

All procedures that have been put into effect have been recommended by the Joint Maternal Welfare Committee of Cook County, which is composed of members from all of the societies in Chicago concerned with the care of obstetric or pediatric patients or with hospital management.

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Discussion of Papers by Drs Farber and Potter

DR RUSTIN MCINTOSH. It is a great privilege to hear these two contributions by such distinguished workers. I do not suppose that we can claim that the entire interest in the pathology of premature and newborn infants in the United States is focused here, but I do know that the leading lights and the most incandescent enthusiasts in this country in that field are present.

No clinician can be satisfied with the morphologic approach alone and, while I agree with Dr Farber when he tells us that we must not be content to assign prematurity as a cause of death without pressing our inquiry further, nevertheless it seems to me that the chief function—the function most important to the pediatrician—of the careful anatomic studies now being made under the leadership of such able demonstrators as Dr Farber and Dr Potter is to furnish us signposts, direction finders, that will point the way back to the underlying disturbances of physiologic mechanisms. Anatomic end results often represent the final and irremediable product of disturbances which, if taken in

hand at an earlier stage, might have been brought under therapeutic or even prophylactic control. It is through a proper choice of such measures and through their application during the stage of functional derangement that one may hope to effect a reduction of premature and neonatal mortality.

Dr Potter points out that the chief lines of attack on neonatal mortality rates lie in the prevention of premature delivery, of trauma, and of infections. The whole question of nutrition has also, it seems to me, become much more important than it ever seemed before and has taken on new aspects. It is no longer a question merely of the provision of an adequate supply of food energy as calories. Under the influence of Dr Samuel Levine and his collaborators we have learned new facts about the water requirements of premature infants. Closely related is the problem of how a young infant, taking a mixed diet of electrolytes, can select what he needs for proper growth and metabolism and deal adequately with the excretion of the remainder. The whole vitamin

question has also been thrown into prominence. One reference has been made, from morphologic evidence, to the possibility of scurvy arising in the premature infant, we know that serum analyses during life have shown that premature infants are apt to suffer a quick lowering of their blood level of ascorbic acid, and, again, Dr Levine has demonstrated that their inability to prevent the excretion of a certain aromatic compound can be controlled by the administration of vitamin C. Vitamin K is also of outstanding importance, many of the workers with a good deal of experience in this field and who speak with considerable authority take a different point of view from that of Dr Farber with regard to the relationship of intracranial hemorrhage in the premature infant to vitamin K deficiency. These are only a few examples. The number of problems is vast, and their scope can only be hinted at. The important thing is the angle of approach, which justifies the hope that gratifying results will come through appropriate study.

It is obvious that Chicago has made great progress in lowering the incidence of premature and neonatal deaths. Here in New York we have a great deal to learn. We are organizing, and I hope that discussion will be forthcoming here from those who represent the Committee on Prematurity. It has been extremely interesting to hear the papers, and I wish to voice my thanks to both the speakers.

DR BERYL H. PAIGE. It is rare indeed for members of the New York Pathological Society to hear a survey of such a large group of cases as these two papers represent. In this vicinity, autopsies on newly born infants are done in some hospitals in the department of general pathology, and in other hospitals they are done by the department of obstetrics and gynecology. Consequently among the audience there are those to whom this age group is of special interest. These pathologists are, I am sure, especially appreciative of the interesting presentations and the excellent demonstrations that have been shown. To the pathologists whose services are limited to older age groups it is evident that newly born infants and the pathologic lesions found in them represent a more or less specialized study.

As has been stressed, a thorough autopsy is extremely important, and it has been indicated that the methods used must be somewhat modified from those used in older patients. This I think is an important point. For instance, failure to employ proper methods

in examining the cranial cavity may give rise to such damage to the tentorium, the dural sinuses, and the brain itself that it may not be possible to evaluate the true pathologic conditions so that the autopsy may be worthless and useless for statistical studies. The emphasis that Dr Farber has placed on the lung indicates that no autopsy can be considered complete until a microscopic examination of the lung has been done. The lesions described bring to the minds of many of us the papers that Dr Johnson, pathologist to the Sloane Hospital, presented at the meetings of the pathologic and obstetric societies years ago. Some of you here may remember that he first presented a series of 4 premature infants with lesions in the lungs similar to those found in influenza, especially in the presence of a hyaline membrane. Within the year he realized it was due to the aspiration of amniotic contents. In his second paper he analyzed cases of congenital pneumonia and drew conclusions regarding the obstetric complications that result in fetal asphyxia and in the aspiration of large amounts of amniotic fluid into the lungs and the relationship of infection of the amniotic contents to antenatal pneumonia. These papers did much to stimulate interest in the lungs of newborn infants in New York and vicinity. After hearing Dr Farber's discussion on immaturity, atelectasis, and lesions resulting from aspiration of amniotic contents, I think that Dr Johnson could no longer say, as he did in 1924, that the newborn lung requires much additional study.

The recognition of a low concentration of prothrombin in the blood of the newly born is interesting in connection with this group where hemorrhages are so extensive but, as the previous speakers have said, we still have to wait to see what the results will be.

Dr Farber has covered the other significant pathologic findings in the newly born. I should like to add a comment on one condition in antenatal and postnatal life which has been of interest to us—that is a condition that Dr Potter mentioned—toxoplasmosis. Most of you recall the recent paper by Drs Pinkerton and Henderson in the *Journal of the American Medical Association* on "Adult Toxoplasmosis," a disease resembling Rocky Mountain spotted fever in some of its clinical manifestations. In the same journal Dr Sabin reported instances of atypical encephalitis in children, 6 and 8 years old, due to the organism, *Toxoplasma*. Up to the present time this organism has been found most fre-

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I was greatly interested in Dr Farber's paper, and particularly interested in two of the points that he brought out one, the question of hemorrhage in the premature I find that most premature autopsies are marked by hemorrhage in some degree and very often by hemorrhage in the brain, subarachnoid membrane, and subventricular areas It seems almost certain that the premature vascular system is not able to withstand the forces with which it is brought in contact during labor and that, as a result of the poorly developed vascular system, we find these hemorrhages developing It is for this reason that I believe it is of extreme importance that we should shorten premature labor and avoid any compression of the premature fetus in the second stage with due regard to the safety of the mother I also have no means of proving this yet, but I feel in definite agreement with Dr Farber that it is quite unlikely that vitamin K will prove of much value in preventing this type of premature hemorrhage I do not believe such hemorrhage has much to do with the ability of the blood to clot but is rather due to a definite weakness of the vessel wall

Second, I was interested in some of the specimens Dr Farber showed of the premature lungs, particularly one which he termed aspiration of vernix caseosa It showed a quite definite thick layer of material lining the alveolar ducts and plugging the alveolar spaces This is the type of lesion that the late Dr Johnson, whose name we have heard many times here, termed "hyaline membrane of the lung," and I wonder if Dr Farber has any explanation as to why this material looks so different from the usual material that is aspirated into the fetal lung during labor

Finally, I should like to express my complete agreement with Dr Farber that the presence of any large amount of amniotic residue in the lung is almost certain evidence that the baby has suffered some degree of asphyxia

Dr SIDNEY FARBER Dr McIntosh raised a question concerning the importance of vitamin K in preventing hemorrhages in the premature infant My own experience is not great enough to permit a definite answer at this time I do not believe, however, that vitamin K will prevent the initial large hem-

orrhage caused by the rupture of a dilated, bridging cerebral vein Vitamin K might be expected to have an important effect in preventing a continued oozing or bleeding after rupture of small vessels Until the accumulation of sufficient data permits an answer to this question, I would prefer to answer as I did because of the danger that vitamin K administration to the mother and to the infant may be regarded as a substitute for the special obstetric and pediatric measures required for the successful care and prevention of hemorrhage in the prematurely born baby

In thanking you again for this opportunity to speak on the pathology of the premature infant, I wish to say one last word concerning this problem. It appears clear that if the conclusions that Dr Potter and those of you who have been trying to reduce the mortality of the prematurely born infant have reached are put into practice by all who have the responsibility for the delivery and care of premature babies an immediate and important reduction in premature mortality would be achieved I do not have to be a prophet to predict that when that day comes a large number of problems of great interest and importance in the physiology and pathology of the premature baby will be encountered Once again, the results of carefully performed postmortem examinations closely allied with clinical and physiologic observations will be needed to point the way for further research Here we have an illustration of what Dr Wolbach might have had in mind when, to a clinical friend who remarked "morphology is dead—all the morphologic problems have been solved," he replied in characteristic fashion "Yes—all the simple problems have been solved"

Dr EDITH POTTER I wish to thank you for permitting me to address this society A program that is a success in one community may need to be considerably modified to meet with equal success in another location, and no one plan can be universally applied The principal condition required to decrease morbidity and mortality among mothers and infants is an awareness that problems exist which in a large measure are capable of solution New York is doing an admirable piece of work, and I wish you continued success

"If people knew how hard I have had to work to gain my mastery, it wouldn't seem wonderful at all."
—Michelangelo

The answers to questions [page 2031] were, 1—e, 2—e, 3—b, 4—d, 5—e, 6—d, 7—e, 8—d, and 9—c

quently in young infants, in whom it gives rise to extensive encephalomyelitis and chorioretinitis. The onset of symptoms and signs in some of these patients during the first 2 or 3 days of life has led to the diagnoses of birth injury, congenital hydrocephalus, or convulsions of undetermined etiology. In other infants hydrocephalus has developed gradually to reach a moderate degree at the end of the first month. Lesions in the fundi have presented difficulty in identification and have been looked on variously as atypical retinoblastomas or unusual forms of chorioretinitis. A diagnostic feature of some importance in the disease is due to the fact that calcium is deposited early in the necrotizing and inflammatory lesions in the brain and is demonstrable by roentgenologic examination. In 1 patient, intracranial calcification was so demonstrated during the second week of life and, in another, heavy deposits of calcium were found at the end of the first month when the first roentgenograms were taken.

Until recently, we have been of the opinion that the disease terminated fatally, usually in early infancy, but identification of 2 cases in older children, still alive, shows that the eventual course in some patients is still unknown.

The early onset of symptoms and the demonstration of calcification of lesions so soon after birth suggested that the parasitic infection was active during intrauterine life, and this was proved to be true by a case that Dr Watson has kindly allowed us to include in our study. Roentgenograms of the mother, taken late in pregnancy, suggested hydrocephalus in the fetus, and eventually craniotomy was required for delivery. In this still-born, hydrocephalic fetus, encephalitis was advanced and in some sites had undergone calcification. There were also characteristic myelitis and chorioretinitis. Parasites were numerous in the lesions and also in the heart, adrenals, and striated muscles. Numerous sections from the placenta failed to show organisms, and none could be recovered from the mother. She and the mothers of the other infected infants knew of no unusual diseases during their lives.

From what source and by what route Toxoplasma reaches the fetal brain remains to be determined, and some pathologist interested in the pathology of the premature infant will in the future contribute much to the knowledge of the infantile disease by identifying the disease in its incipient stage.

DR WILLIAM E. STUDDIFORD Dr Potter

has presented to us an admirable plan for the study of stillbirths, neonatal deaths, and deaths in infants under 1 year taking place in a large community. This plan has been carried out in Chicago for the past several years so that the vast amount of material available in such a community has been almost fully utilized. She has emphasized not only the importance of the autopsy but the correlation of the findings at autopsy with the clinical background. Such a correlation is of particular importance to the obstetrician in the group of cases consisting of stillbirths and neonatal deaths and to the pediatrician in the group of infants up to 1 year of age. It has been pointed out that comparatively little improvement has been brought about in the latter group.

Many institutions in New York are doing fine work along these lines, but such efforts are isolated. We do not as yet have any special system of coordination such as has been described in Chicago. I am sure that the various committees working in this field are making serious efforts to bring such a plan about and to equal the results we have seen here.

In reviewing a much smaller quantity of material than has been reported by Dr Potter—namely, the autopsies seen at Bellevue Hospital—we can fully agree on the causes of death in these three groups. I think Dr Potter has been quite kind to the obstetrician in discussing the methods of attack on the main causes of death: prematurity, intracranial injury, and infection. She devoted most of her time to the care of the premature infant after it was born, but prematurity, certainly to some extent, is the problem of the obstetrician. It is probable that a certain amount of prematurity can be prevented by proper antepartum care. Although some are inevitable, a certain number of premature births initiated by premature rupture of the membranes can be postponed. Once labor has commenced it has been fairly well shown that the use of sedation of any kind works greatly against the interests of the fetus. Finally, we should deliver these babies with the least possible trauma. If the obstetrician will work along these lines he will hand the premature baby over to the pediatricians in the best possible condition.

I do not believe there can be any discussion of Dr Potter's remarks on the methods to reduce the incidence of intracranial injury nor of her remarks on the efforts to reduce the possibility of infection.

L. A. Chambers* of the University of Pennsylvania on curd digestion in an artificial digestion apparatus. In these studies they give the approximate range of curd size expressed in total surface for various kinds of milks used in infant feeding. Dr. Wolman¹⁰ has used, with most satisfactory results in the feeding of infants at the Children's Hospital of Philadelphia, a low curd tension milk prepared by the sonic wave process.[†]

In view of the activity in the milk industry today in pushing the preparation of soft curd milk by various methods, including pressure homogenization, as well as the increasing interest on the part of the medical profession in processed milks of various types, particularly evaporated milk, there has arisen a challenge that Certified Milk could not overlook.

By reason of the increasing prominence and general acceptance of the teachings of Dr. Brennemann and his associates, the work of Drs. Wolman and Chambers, and others, the matter seemed deserving of the most careful attention and consideration on the part of the Milk Commission.

Certified Milk seemed the best source for a soft curd milk. It was felt that a processed milk produced from Certified would go a long way in meeting this ideal of a milk for infant feeding in that (1) it would be a milk of low curd tension produced from the highest grade of milk in the dairy industry, (2) it would be processed after milking at the point of production and immediately bottled, (3) it would be a processed milk that the profession would know was subject to the same methods and standards under which Certified Milk is produced, (4) the milk used in its preparation would be the cleanest, freshest, most nutritious, as well as the lowest bacteria count milk available in the dairy industry—a milk obtained from cows in an optimal state of

health and hygiene and freedom from tuberculosis.

Therefore, using Certified Milk as a basis and employing a process for inducing a soft curd milk which would add nothing to the milk and take nothing away from it, we should theoretically have a rather ideal milk for infant feeding—a milk in which no preliminary preparation would be necessary—a milk that the physician might use as the base for the feeding formula with such dilution or addition as might be prescribed.

Because of the curd tension of Certified Milk in its natural state, preliminary boiling is desirable to render it more easily digested by the average infant stomach, especially for the very young and more particularly for prematures. This preliminary boiling in making the formula in the home quite readily prepares the milk for use in routine infant feeding, and, as the article¹¹ in the *Journal of the American Medical Association* of June 19, 1937,* states, there is meager evidence that any soft curd milks are better digested or more completely digested than ordinary boiled milk. Despite the simplicity of this procedure for preparation of milk formulas, the practitioner may have trouble using milk in feeding babies under his care because of lack of sufficiently long boiling or no boiling at all.

There is not one processed milk available in the market for infant feeding in which proof has been submitted that the milk used in its preparation meets the same high standards for purity, nutrition, and cleanliness, and safeguards as to production and freshness as does Certified Milk.

It appeared clear that if a milk could be prepared by a process that would maintain and safeguard the excellent qualities of Certified Milk and yet provide a more readily digestible curd a real contribution might be made to the practitioner's feeding problems.

On this basis preliminary investigation of the possibility of the production of a low curd tension milk from Certified was undertaken. After consideration of the pressure homogenization procedure and the sonic oscillation process, it was decided that the latter method would comply with the requirement for Certified Milk in that nothing would be added to or taken away from the milk as produced by the cow, because in the sonic oscillation process reduction of curd tension is accomplished without any other known change in the milk.[†]

The preliminary steps and investigations made were currently reported upon at Milk Commission meetings. The apparatus manufactured by the Submarine Signal Company of Boston for the production of a soft curd milk was installed on experimental production at Loudon Hill Farm, South Montrose, Pennsylvania, with the approval of the Department of Health. An experimental study period of a clinical type was decided on. The Milk Commission appointed a committee to conduct the study of the product. A plan was prepared, forms were mimeographed,

* In Dr. Wolman's work the curds of raw processed and modified milks were measured after carefully controlled digestion of these milks in an artificial digestion apparatus using a synthetic gastric juice. The coagulated material then was passed through a series of graded wire sieves of meshes ranging from $1/2$ to $1/64$ inch. Filter paper collected the finest particles. After weighing it is possible to make an estimate of the total surface.

† More recently in a report on a comparative study of soft curd homogenized milks produced by various methods Dr. Wolman gives data concerning the curd tension of different milks. The high-pressure homogenized milk gave readings of 5 to 20 Gm. the low-pressure homogenized milk and the sonized milk a range between 10 and 30 Gm. the former giving higher readings. The raw milk unboiled tested 40 to 60 Gm. and if boiled five minutes 5 to 10 Gm. He considers that pasteurized homogenized milks are as good or better as a food than pasteurized milk boiled five minutes in the home and that the process possesses the advantage of making less any danger of household contamination of the food. In a table giving the number of loose bowel movements with each of these for varieties of milk, the following episodes of loose bowel movements with or without vomiting occurred: pasteurized milk boiled five minutes at home 77, sonized milk 28, low-pressure homogenized milk 76, high-pressure homogenized milk 44 (reference: *Soft Curd Homogenized Milk in Infant Feeding, Preliminary Report by Dr. Irving J. Wolman in the Weekly Roster and Medical Digest* the Philadelphia Medical Society April 6 1940, p. 1000).

The Committee wishes to draw attention in this connection to the low curd tension readings noted in the present study of Sonized Certified Milk which average 10.5 Gm. and which appear lower than those reported by Dr. Wolman. The almost complete absence of loose bowel movements in our series except when associated with respiratory infection is in accord with the lower incidence with this milk as reported by Dr. Wolman.

* The article on "The Nutritional Significance of the Curd Tension on Milk" appeared as an authorized publication of the Council of Foods.¹¹ This article is most informative and was freely drawn on by the Committee both during its work and in formulating the report.

† It appears from our present knowledge that no changes occur in the process of sonic oscillation other than those that may be incidental to the pasteurization that precedes the processing.

A STUDY OF SONIZED SOFT CURD MILK PREPARED FROM CERTIFIED MILK*

Part 1—The Theoretic and Clinical Basis for the Study and Use of a Low Curd Tension Milk Prepared from Certified Milk

For the fundamental reasons that have given the present prominence and importance to the use of homogenized milk in the feeding of infants, reference is necessary to the publications of Dr. Joseph Brennemann,¹ of Chicago. In this work particular attention is drawn to the difference in the character of the curd which raw and treated cow's milk forms in the infant's stomach.

In subsequent publications and again most recently in his *Practice of Pediatrics* in the chapter on "Artificial Feeding of Infants," Dr. Brennemann² in comparing bovine and human milk has called attention to certain differences between the protein and fat of these two milks. These it would seem may be correlated to explain the relative digestibility of the milks and the differences in the character of the curd which they form in the infant's stomach.

It is recognized that the fat of cow's milk is not as readily and fully utilized as that of breast milk. This is apparently dependent on factors other than the fat, in particular the physicochemical characteristics of the medium in which it is contained. Thus, there are certain striking differences between the two milks relative to their protein content and its distribution in the respective forms of lactalbumin and casein. Thus, while in human milk the casein content averages 0.5 per cent and the lactalbumin 0.75 per cent, in cow's milk the casein is 3.0 per cent and the lactalbumin is 0.5 per cent. Hence, in digestion, owing in large part no doubt to the much smaller amount of casein and the fact that lactalbumin does not coagulate in the stomach, human milk remains nearly a liquid, forming fine soft curds

in the infant's stomach, while cow's milk, owing to its sixfold greater casein content, coagulates to form one or more large clots.

This type of curd offers considerable hindrance to access of the digestive juices of the stomach and, therefore, leaves the stomach much more slowly. While this is mainly due to the large casein curds that are formed, it may also possibly be attributed in part to the character of the fat. Therefore, a most important consideration in the feeding of cow's milk formula is its adequate preparation by some means that will insure a finer, softer, more readily digested curd. In fact, "such a process of attenuation of the curd of cow's milk has been intentionally or unintentionally a major factor in the preparation of every infant's food that has ever been devised."³

The effect of dilution, boiling, acidification, and alkalization, the removal of calcium, and the addition of cereal water have all resulted in the production of a finer, softer curd more nearly approaching that of human milk. Most all processed milks for infant feeding have intentionally or unintentionally a finer, softer curd. In explanation of whatever values are claimed for these various milks in infant feeding, the factor of lowered curd tension is a consideration that should not be lost sight of.

There is no question that the popularity that certain processed milks have with a large group of the medical profession is concerned in practical application with the simplicity and ease with which milk of this kind may usually be fed to the average infant without exciting digestive troubles. Here again one must not be forgetful of the fact that this ease of digestibility relates especially to the changes that the process used has induced, thus lowering the curd tension of the milk. It is doubtful whether the profession as a whole has as yet a correct appreciation of this fundamental fact. As a matter of fact, since the early experiments of Brennemann demonstrating the different curd qualities of raw and treated milks, the character of the curd which the milk forms in the infant's stomach has been generally recognized as an important factor in its digestibility.

There has recently been introduced into the preparation of milk, particularly for infant feeding, a process termed homogenization^{4,5,6} in which, by means of mechanical subdivision of the fat particles to smaller, more uniform size, there results a milk in which there occurs a curd tension lowering proportional to the reduction in size of the fat globules. A second process for producing a milk of low curd tension is known as the sonic process. In this method the milk is passed slowly at no pressure over a magnetically driven plate vibrating intensely with the frequency of sound waves. Effective curd tension lowering results.

In this connection, there are also the interesting studies^{7,8} of Dr. Irving J. Wolman and Dr.

* This report was made for the Milk Commission of the Medical Society of the County of Kings by a Special Committee (see below). It was submitted to the Department of Health New York City on February 1, 1940, following an experimental study of the milk from April 1, 1939 to January 15, 1940.

As presented now for publication, this paper is almost a facsimile of that sent to the Health Department with the exception that the bibliography has been revised certain footnotes have been included, and the laboratory analyses of individual milk samples have been placed in summary forms in appropriate tables. In the planning and execution of this study, the Committee expresses its indebtedness for the constant guidance and invaluable advice given by Dr. Aleo N. Thomson, secretary of the Milk Commission.

The following physicians have cooperated by registering cases with the Committee: Drs. Harold L. Barnes, Manning Field, Charles F. Fisher, Clarence Friedman, William Z. Fradkin, Thurman B. Givan, Lewis A. Koch, Abraham Litvak, Philip Lombard, Emil Smith, and Benjamin Stollhoff.

For assistance with the technical laboratory examinations we express appreciation to Mrs. Evelyn Crabb for her valuable cooperation and for assistance with records and reports our acknowledgment is due to Miss Isabel T. Fisher.

Respectfully submitted, Harry S. Bikoff, M.D.
Samuel S. Brown, M.D. Edward W. Zukauskas, M.D.
Joseph C. Regan, M.D. Chairman

Infants' Percentile Weight Chart

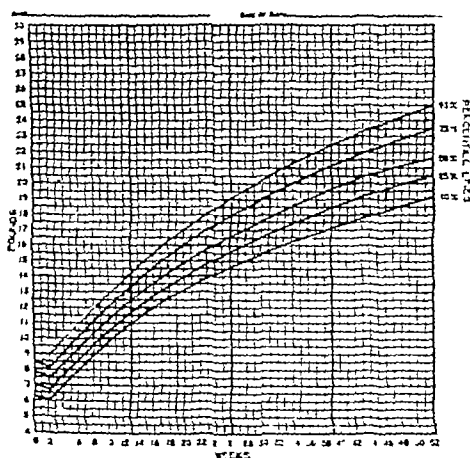


FIG 1 This is known as a Percentile Weight Chart and may be used to advantage in following the growth and nutrition of normal infants throughout the first year. It is recommended that the baby be weighed regularly once each week at bath time and that the weight be recorded on this chart. When the points represented by these weights are joined together, a weight curve for the infant will be formed, and the nature of this curve will give valuable information as to health and nutrition.

A normal infant receiving a satisfactory diet will be expected to follow quite closely in weight one or another of the curves shown in the chart. Failure to keep up with the line previously followed or rapid gain beyond it suggests the need for change in diet and should be brought to the attention of your physician.

Normal infants of the same age differ in body build and hence in weight. The weight of 80 per cent of normal infants will fall between the 90 and 10 per cent lines on the Percentile Chart (shaded area). If a baby's weight falls below the 10 per cent line or rises above the 90 per cent line, progress is unusual and requires attention. Regular progress within the shaded area suggests that the infant is well nourished and making satisfactory progress.

The measurements upon which this chart is based were obtained on a small series of normal full-term babies born at the Boston Lyng-in Hospital and carefully followed throughout the first year. Small prematurely born or otherwise exceptional babies should not be expected to conform to the pattern of this chart.

in a third group designated as Group C. The patients were not formally registered in the Commission office with any history forms. The results from the cooperating physicians as expressed in telephone or written reports will, therefore, be briefly mentioned.

It is rather difficult to determine in such a small series the significance of weight increment that occurred in the cases on this milk. The infants in the group under 1 year were too few in number and some were on the milk too short a

TABLE 3—AVERAGE WEIGHT GAINS PER WEEK ACCORDING TO AGE GROUPS

Age	Number of Infants	Average Gain per Week, Ounces	Low, Ounces	High, Ounces
Under 6 mo.	16	5.6	3.1	10.0
6 mo.-1 yr *	3	2.7	2.6	2.9
1 yr -1½ yr *	2	5.3	2.3	3.3
1½ yr -2 yr	0			
Over 2 yr	1	4.0		

* The number of infants between 6 months and 1 year, and 1 year and 18 months included in the series is too small to consider the average gain per week as given in this table as an index of what would actually be the case with a larger series of cases.

TABLE 4—ANALYSIS OF WEIGHT GAINS ACCORDING TO THE INFANTS' PERCENTILE WEIGHT CHART OF CAMBRIDGE HOSPITAL

Cases Studied by the Special Committee, Kings County Milk Commission

Birth Weight Pounds	Age Began Sonized, Weeks	Group Began in	Group Ended in
8	4	3	3
6	6½	-1	4
6	8	2	1
7	10	2	1
6	14	2	1
5	1	2	4
7	1	3	3
6	3	3	3
6	4	1	1
5	8	4	+4
5	10	1	2
7	10	3½	2
9	9	24½	3
7	4	16½	4
6	12	6½	4
6	9	6½	3

TABLE 5—ANALYSIS OF WEIGHT GAINS ACCORDING TO THE INFANTS' PERCENTILE WEIGHT CHART OF CAMBRIDGE HOSPITAL

Cases Studied by Dr. Irving J. Wolman, of Philadelphia

Birth Weight Pounds	Age Began Sonized, Weeks	Group Began in	Group Ended in
8	15	1	+4
5	6	3½	-1
7	1	2½	1
7	9	2	3
8	2½	2	1
6	13	1½	-1
7	3	1½	2
6	4	1½	1
7	1	1	3
7	7	4	2
5	14	3	1
7	1	2½	3
6	3	1½	1
8	4½	1	2
7	3	3½	1
6	8	1	2
8	11	2	4
4	8	8½	-1
7	4	3	4
7	8	11½	-1
8	1	4	+4
5	4	3	1
5	15	4	4
5	14	9½	-1

time to give a clear-cut pattern of what effect the milk may have on weight increment.

We have attempted to analyze the weights recorded in several ways: (1) according to the Infants' Percentile Weight Chart of Cambridge Hospital, Cambridge, Massachusetts (Fig. 1), (2) in accordance with the ounces gained per

TABLE 1—GROUP A STATISTICAL SUMMARY

Color	Sex	Race
White—22	Male—11 Female—11	Irish-American—9 German-American—3 Italian—4 American—1 Hebrew—5
Birth Status	Birth Weight Pounds	Age Started on Sonized Milk
Full term—12	4-5-2	Birth-6 mo—16
Premature—6	5-6-4	8 mo-1 yr—3
Immature—4	6-7-8	1 yr-1½ yr—2
	7-8-5	1½ yr-2 yr—0
	8-9-2	Over 2 years—1
	9-10-1	
	Before Using Sonized Cer- tified Milk	After Using Sonized Cer- tified Milk*
Crying		
Great deal	2	0
Occasional	14	4
When hungry	1	2
None	5	16
Regurgitation		
Yes	10	0
No	8	20
Occasional	4	2
Vomiting		
Yes	7	0
No	13	21
Occasional	1	1
Exceptional	1	0
Abdominal Distention		
Yes	8	0
No	14	22
Colic		
Yes	5	0
No	15	21
Occasional	1	1
Exceptional	1	0
Hiccough		
Yes	7	0
No	13	17
Occasional	2	4
Exceptional	0	1
Constipation		
Yes	6	0
No	13	0
Occasional	2	17
Exceptional	1	5
Comfort		
Excellent	0	0
Normal	13	7
Uncomfortable	6	15
Very uncomfortable	3	0

* The clinical study of these cases as evidenced in the statistical summary clearly indicates that in nearly all instances where infants with signs of curd indigestion were placed on this milk there was rapid improvement and disappearance of the symptoms of colic abdominal distention, regurgitation, vomiting, crying, restlessness, etc. It may safely be said that sonized Certified Milk is an easily digested milk.

and a laboratory study as to curd tension, bacterial counts, fat content, as well as clinical results of the use of this milk in private practice, was begun in April, 1939

The results so far as laboratory reports of the examination of this milk at the Milk Commission's laboratory, bacterial counts, butterfat content, and curd tension readings are concerned have exceeded our expectations and are available in the accompanying reports. As to the clinical results, the reports filed by the cooperating physicians who have made observations of infants fed with this milk are herein presented, as well as the impressions arrived at as to the value of this milk

The practitioner should be made aware of the fact that a soft curd milk produced by the sonic oscillation process from Certified, with a wonderfully good taste, a low curd tension, remarkably

TABLE 2—WEIGHT GAINS BEFORE AND AFTER USING SONIZED CERTIFIED MILK

Case Number*	Gain per Week Before Use of Sonized Certified Milk, Ounces	Gain per Week After Use of Sonized Certified Milk, Ounces
1	4 8	2 3
2	2 5	4 1
3	3 7	6 7
4	2 5	7 8
5	5 0	1 6
6	6 6	6 3
7	6 3	3 2
10	3 0	6 6
11	6 7	4 6
12	4 5	3 1
13	5 8	5 8
14	4 0	6 3
16	2 6	5 2
20	4 4	4 3
24	5 5	3 8
25	2 0	14 2
26	11 4	13 0
27	6 7	7 8
28	7 0	3 7
29	10 1	6 0
30	9 8	5 5
31	4 6	2 5
32		

*It is apparent that while the case numbers range from 1 to 32 there are only 22 patients listed. This discrepancy is not real however but is explainable in the fact that in 3 patients originally registered with a case number no follow-up examinations were made by the cooperating physician and, therefore, they are included in Group B. In 7 other patients, although they were registered and received their proper numerical designation no history or physical examination forms were filed with the Commission and therefore, they necessarily had to be excluded from Group A.

low bacterial count, and normal butterfat content, is available for infant feeding. The milk deserves a high place in the physician's dietetic armamentarium

Part 2—Clinical Study of Sonized Certified Milk as Used in Private Practice

After the plan of study had been drawn up, the forms for physical examination of the infant were prepared, and the Loudon Hill Farm at South Montrose, Pennsylvania, was inspected by a visit of representatives from the Commission. The operation of the sonic oscillator was critically observed, and samples of the milk in various parts of the process from the pasteurizer to the cooler were examined on many occasions. On the basis of the excellent results found in the laboratory tests for curd tension, bacterial counts, fat content, etc., the clinical study was begun. The cases for study were registered in the Milk Commission office through the secretary-stenographer of the Subcommittee

From April 8, 1939, when the first case was registered, until January 15, 1940, when the study period was ended, a total of 25 cases was registered. In 22 of these the history, physical examination, and follow-up forms were made out and the findings could, therefore, be tabulated. This group is the main one on which the tabulated study of results could be made and is designated as Group A (Table 1). The remaining cases without sufficient follow-up examination data are designated as Group B. In these 3 cases the cooperating physicians expressed their opinion as to the results obtained with sonized Certified Milk.

Sonized Certified Milk was supplied and used

amination follow-up forms, all 18 infants who could be studied by virtue of their ages according to this method were well nourished and made satisfactory progress except 1. Of the remaining 6 infants as judged by their weight gains, progress was satisfactory in all. In 3 of the 6, detailed follow-up was carried out. In the remaining 3 there was insufficient data but the physicians summarized their opinions as satisfactory.

The stools of all infants placed on this milk were satisfactory. Constipation, if any was present before, appeared to diminish or disappear after this milk was used. In 3 cases curds and mucus were mentioned as being present in the stools prior to the use of sonized milk, and these disappeared after its use. In no instance did loose stools develop while on sonized Certified Milk in the absence of an acute infection of the upper part of the respiratory tract. In a few instances when an acute infection of the upper part of the respiratory tract occurred, some loose stools were present. These, however, disappeared quickly. It was found during the study that it was unnecessary to stop sonized Certified Milk in the presence of infections of the respiratory tract.

In recognizing the difficulty of drawing conclusions from comparison of weights, the Subcommittee using Fig 1 was interested to see whether the cases registered (16) could be considered normal and whether the cases reported by Dr Wolman of Philadelphia (10) remained within the grouping of the percentile lines. Arbitrarily and for the purposes of tabulation, the 10 to 25 per cent line was called Group 1 and the others Groups 2, 3, and 4. Tables 4 and 5 are presented as an interesting procedure of comparison without conclusions.

Group B—Because of the lack of sufficient follow-up examination data the 3 cases in this group could not be studied fully. However, there was evidenced a marked improvement in the general condition and comfort of these infants, and all showed a satisfactory weight gain after they were placed on sonized Certified Milk.

Group C—Of the infants not registered and not included in the analysis of cases, telephone reports on the results of the use of the milk were received from 9 physicians concerning 12 infants. The results are as follows: satisfactory in 6, unsatisfactory in 1, and not followed up in 5. In 3 of the latter cases almost immediate discontinuance of the milk was ordered by the mother because no cream line was visible. It was impossible by reason of lack of data on all these cases for the physician to arrive at any definite clinical impressions.

Summary

It is evident from the tabulation of the condition of the infants before and after the use of sonized Certified Milk that with regard to the condition of comfort of the baby and the associated symptoms of crying, regurgitation, vomiting, abdominal distention, colic and hicough

CHART 3 —SONIZED CERTIFIED MILK CURD TENSIONS*

Tension in Grams	Before Pas- teuriza- tion from Vat	After Pas- teuriza- tion from Vat	From Vent at Some Oscillator Before Sonized	From Cooler After Bottling— After Sonized
10 and under	0	0	0	145
11-15	0	1	0	91
16-20	0	0	0	14
21-25	0	1	0	1
26-30	0	3	8	0
31-35	13	21	17	0
36-40	15	22	18	0
41-45	13	4	9	0
46 and over	13	3	3	0

* These curd tension readings were those obtained by use of the Curd Tension Meter of the Submarine Signal Company in which the operation is entirely automatic and the accuracy of the measurements is not subject to human errors as with the use of the spring balance method.

there was a marked difference in these symptoms after sonized Certified Milk was started. The findings most characteristic throughout the study are the improvement and the rapid disappearance of the above symptoms so often associated with cow's milk, especially in the young infant during the first few months of life. The rapid improvement generally noticed in the infant's comfort was one of the most prominent features of sonized milk made from Certified

Part 3 —Laboratory Report

Charts 1, 2, and 3 give the results of the laboratory analyses of individual milk samples.

Part 4 —References to Literature*

- 1 Brennemann Joseph J.A.M.A 60 575-582 (Feb 22) 1913 Arch. Pediat. 34 81 (Feb) 1917
- 2 Brennemann, Joseph Practice of Pediatrics, Hagerstown Maryland, W F Prior Co 1937 vol. 1 chapt 26 pp 3-6
- 3 Viorot D Homogenization and Its Value from a Medical Point of View, Proc. Third Internat Dairy Congr September 1937
- 4 Ladd, Maynard Boston M & S J 173 8 (July) 1915
- 5 Doan F J and Manster C R. Homogenization of Milk and Cream The Pennsylvania State College School of Agriculture and Experimental Station, Tech Bull 287, May 1933
- 6 Babcock C J The Effect of Homogenization on Certain Characteristics of Milk, U S Department of Agriculture Tech Bull 438 Aug 1934
- 7 Chambers L A and Wolman, I C Abst J Dairy Sci 21 162 164 (1938) 21 162 (1938)
- 8 Chambers, L A Measurement of the Digestibility of Milk, Certified Milk, November 1939, J Dairy Sci 19 29 (Jan) 1936
- 9 Wolman, I J The Curd Size and Curd Tension of Milk presented before the Pediatric Section, The New York Academy of Medicine January 13, 1938.
- 10 Wolman, I J Personal communications to the Milk Commission, Medical Society of the County of Kings April 11 1939 April 20 1939, June 15 1939 and December 12, 1939
- 11 Report of Council on Foods of the A.M.A J.A.M.A. 108. 2040-2041 (June 12) 1937 2122 2123 (June 19) 1937

* The extensive references to the literature contained in this section are omitted to conserve space.

WHATCHA GOT?

The nurse entered the professor's room and said softly "It's a boy, sir"

The professor looked up
"Well, what does he want?"—Analyst

CHART 1—SONIZED CERTIFIED MILK
Plate Counts in Various Parts of the Process

Number of Colonies per Cubic Centimeter	Before Pasteurization —from Vat—		After Pasteurization —from Vat—		From Vent at Sonic Oscillator Before Sonized		From Cooler After Bottling—After Being Sonized	
	1/10	1/100	1/10	1/100	1/10	1/100	1/10	1/100
0 counts								
0—50	1		10	38	13	35	1/10	1/100
50—100			34		36		37	174
100—200		1	3		4	15	206	
200—300			1	9	1	3	24	75
300—400	1		1	3	1	1	12	24
400—500	2		1	2			2	6
500—1,000	2		1				2	2
1,000—2,000	10	6	2	1		1		1
2,000—3,000	32	27		3			1	1
3,000—4,000	6	14						
4,000—5,000		4						
5,000—10,000		1						
Total counts		54						
High count	52		53	54	54	55	284	283
Low count	2 880	6,300	980	1,300	250	500	720	500
Average count	20	700	0	0	0	0	0	0
0 count	1,311	1,937	76	118	27	52	33	57
	0	0	10	36	12	35	37	174

CHART 2—SONIZED CERTIFIED MILK STANDARD PLATE COUNTS

After Being Sonized—Samples from Cooler and Bottler Comparative Counts Specified as "Number of Colonies per Cubic Centimeter"—Different Periods in Process

Date	Number of Standard Plate Counts (Dilutions)		Average Counts (Dilutions)		Zero Counts (Dilutions)		Percentage Zero Counts (Dilutions)	
	1/10	1/100	1/10	1/100	1/10	1/100	1/10	1/100
March 24—May 31, 1939 (process just started)	50	50	65	126	3	18	6	32
June 1—July 14	51	51	31	66	2	29	4	57
July 14—August 31	61	60	30	40	4	41	6	68
August 31—October 16	41	39	44	36	11	37	27	70
October 16—December 1	43	44	20	47	2	26	4 7	59
December 1—January 16, 1940 (process well established for some months)								
	38	38	11	8	16	35	42	92

Note. During an observation period of a little more than two weeks, April 19, 1939 to May 5, 1939, just after the study was begun, there were a number of standard plate counts which were higher than at any time in the study. These excessive counts were considered due to thermophilic organisms and evidently were in part due to some defect in processing. They are as follows

	1/10 Dilution Average	1/100 Dilution Average
Raw Certified, 4 counts	3,842	5,675
From pasteurizer, 4 counts	927	1,350
From vent on Sonic Oscillator, 4 counts	1,207	1,525
After being sonized from cooler, 17 counts	1,747	2,512

At no subsequent time in the study were counts like the above encountered

Note. The butterfat content of sonized Certified Milk has conformed with the Certified requirements of 4 per cent with the variations permitted by the Methods and Standards for the Production of Certified Milk. The average fat content of 288 samples was 3.98 per cent.

week before and after the use of sonized Certified Milk, and (3) according to the average weight gains with high and low figures in age groups. The results according to these methods are shown in Tables 2, 3, 4, and 5. These tables are not so illuminating, however, in showing the trend of the weight curve as the Infants' Percentile Weight Chart because of the number of premature and immature babies in the series. Even the latter cannot be completely adapted to this purpose but it does give a much clearer picture.

According to the Infants' Percentile Weight Chart of Cambridge Hospital, the following results were revealed in an analysis of 16 of the babies studied in whom this chart could be utilized (as the babies remained under 1 year of age during the time of the study) (1) In 3 infants the weight curve ended in a lower zone than that in which the infant's weight fell when placed on sonized milk, (2) in 7 cases the weight curve ended in the same zone as that in which the

infant's weight fell when placed on sonized milk, (3) in 3 cases the weight curve ended in a higher zone than that in which the infant's weight curve fell when placed on sonized milk, (4) in 2 cases the weight curve ended in a much higher zone than that in which the infant's weight curve fell when placed on sonized milk, and (5) in only 1 infant did the weight curve on sonized milk fall below the lower limit of the 10 per cent weight curve as shown in Fig 1.

It is to be noted that these weight curves refer to normal, full-term babies. "Small prematurely born or otherwise exceptional babies should not be expected to conform to the pattern of this chart." In the series of 16 infants here studied, 6 were premature and 4 were immatures. The development of these infants appeared normal on this milk so far as one could judge by the clinical impressions given by the physicians.

According to the Cambridge Percentile Weight Chart and in accordance with the physical ex-

amination follow-up forms, all 16 infants who could be studied by virtue of their ages according to this method were well nourished and made satisfactory progress except 1. Of the remaining 6 infants as judged by their weight gains, progress was satisfactory in all. In 3 of the 6, detailed follow-up was carried out. In the remaining 3 there was insufficient data but the physicians summarized their opinions as satisfactory.

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31-35	13	21	17	0
36-40	18	22	18	0
41-45	13	4	9	0
46 and over	13	3	3	0

* These curd tension readings were those obtained by use of the Curd Tension Meter of the Submarine Signal Company in which the operation is entirely automatic and the accuracy of the measurements is not subject to human errors as with the use of the spring balance method.

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3. Varot D. Homogenization and Its Value from a Medical Point of View. Proc. Third Internat. Dairy Congr. September 1907.
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5. Doan, F. J., and Menster C. R. Homogenization of Milk and Cream, The Pennsylvania State College School of Agriculture and Experimental Station Tech. Bull. 287, May 1933.
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7. Chambers, L. A., and Wolman I. C. Abst. J. Dairy Sci. 21 162 164 (1938) 21 162 (1938).
8. Chambers, L. A. Measurement of the Digestibility of Milk Certified Milk. November 1939. J. Dairy Sci. 19 29 (Jan.) 1936.
9. Wolman I. J. The Curd Size and Curd Tension of Milk, presented before the Pediatric Section The New York Academy of Medicine January 13 1938.
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11. Report of Council on Foods of the A.M.A. J.A.M.A. 108. 2040-2041 (June 12) 1937 2122 2123 (June 19) 1937.

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WORKMEN'S COMPENSATION

September 18, 1941

Owing to an unfortunate experience in Philadelphia, where a laborer employed on one of the Construction Division Projects died suddenly after an injection of tetanus antitoxin (sensitivity tests allegedly not having been done) the War Department, Office of the Quartermaster General, Washington, D C, issued an order instructing all contractors and their insurance carriers and all civilian physicians to whom any contractor employees might be sent for treatment for injury sustained while at work, that tetanus antitoxin should not be administered without first making the usual tests to determine the patient's reaction to the serum. *In this order it was also recommended that all sensitive cases requiring antitoxin be hospitalized.*

It was pointed out to the War Department that among other things this recommendation might involve unnecessary hospitalization, loss of time and money, and that safety could be assured without hospitalization in every case. Under date of September 6, 1941, this order was rescinded and a new order known as Construction Division Letter No 443 was issued. It follows

"SUBJECT Instructions Concerning the Use of Tetanus Antitoxin, etc
"TO All Zone Constructing Quartermasters
All Constructing Quartermasters.

"1 This letter rescinds Construction Division Letter No 334. Effective this date you are instructed to direct all contractors and/or their insurance carriers, and through either or both of them, all civilian physicians to whom any of the contractors' employees may be sent for treatment of injuries sustained while at work, that tetanus antitoxin will not be administered to any such injured employee without first making the usual skin test to determine the patient's reaction to the serum

"2 In the event that a highly positive reaction develops and antitoxin is still necessary, the patient shall be desensitized in accordance with the circumstances indicated.

"3 The procedure in paragraphs 1 and 2 shall also be followed by all Constructing Quartermasters on Purchase and Hire Projects

"For the Quartermaster General

BREHON SOMERVELL,
Brigadier General, U S A., Assistant"

Physicians treating claimants employed on Government projects and entitled to medical care under the Workmen's Compensation Law of this state are urged to carry out the spirit and letter of this recommendation.

A careful history should be taken in every case before tetanus antitoxin is administered to determine if the patient had previously received tetanus antitoxin or horse serum injections or is otherwise allergic. Sensitivity tests should be carried out in every case by the usual and accepted procedures, which are ordinarily outlined by the manufacturers of serum in the package containing the tetanus antitoxin. Great caution should be used in desensitizing and injecting a patient found to be sensitive or suffering from allergic conditions and requiring tetanus antitoxin. Hospitalization may be provided where in the judgment of the attending physician the degree of sensitivity warrants desensitization and subsequent injection of tetanus antitoxin under hospital conditions

DAVID J KALISKI, M D, Director

THE LOUIS LIVINGSTON SEAMAN FUND

The New York Academy of Medicine announces the availability of the Louis Livingston Seaman Fund for the furtherance of research in bacteriology and sanitary science. Two thousand dollars is available for assignment in 1941. This fund has been made possible by the terms of the will of the late Dr Louis Livingston Seaman and is administered by a committee of the Academy under the following regulations

1 The committee will receive applications either from institutions or individuals up to

November 1, 1941. Communications should be addressed to Dr Wilson G Smulhe, chairman of the Louis Livingston Seaman Fund, 1300 York Avenue, New York City

2 The fund will be expended only in grants in aid for investigation or scholarships for research in bacteriology or sanitary science. The expenditures may be made for (a) securing of technical help, (b) aid in publishing original work, and (c) the purchase of necessary books or apparatus

Thirty-Fifth Annual Meeting

of the

Second District Branch

PROGRAM



Thursday, October 30, 1941
Garden City Hotel, Garden City, New York

President. Burdge P. MacLean, M.D
Secretary-Treasurer. Charles F. McCarty, M.D

1st Vice-President. Francis G. Riley, M.D
2nd Vice-President. John B. D. Albora, M.D

Exhibits—10 00 A.M.—5 00 P.M.

A unified County Cancer Program—Nassau County Cancer Committee, Meadowbrook Hospital, New York Memorial Hospital.

Industrial Accidents and Industrial Diseases—New York State Department of Labor

Morning Session—10 00 A.M.—12 30 P.M.

Symposium Industrial Medicine

"Pre-employment Examination"

Cassius H. Watson, M.D., *medical director, American Telephone and Telegraph Company, New York City*

"Occupational Diseases"

Irving Gray, M.D., *chairman, Committee on Industrial Health, Medical Society of the County of Kings*

"The Prevention of Infection in Injury"

S. Potter Bartley, M.D., *chief, Traumatic Clinic, Long Island College Hospital, Brooklyn*

"Placement of the Handicapped"

Murray Nathan, *New York State Employment Service, Albany*

"Rehabilitation"

Henry H. Kessler, M.D., *medical di-*

rector, New Jersey State Rehabilitation Clinic, Newark, New Jersey A sound film will be shown.

Afternoon Session—2 30—5 00 P.M.

"Diseases of the Thyroid Gland"

Frank H. Lahey, M.D., *director, Lahey Clinic, Boston, president, American Medical Association* Slide demonstration.

Woman's Auxiliary

The woman's auxiliaries of the four county medical societies on Long Island will attend the Luncheon and will hold a meeting at the Garden City Hotel in connection with the meeting of the Second District Branch. (Notice of this meeting will be mailed to the members of each of these auxiliaries.) Bridge will follow.

Luncheon—1 00—2 30 P.M.

Dr. Samuel J. Kopetzky, president of the Medical Society of the State of New York, will briefly address those present—the rest of the luncheon period will be entirely a social one. Tickets will be \$2.00 per plate.

AMERICAN CONFERENCE ON INDUSTRIAL HEALTH

The second annual meeting of the American Conference on Industrial Health will be held on November 5 and 6 at the Chicago Towers in Chicago. The conference will be attended by industrial physicians and manufacturers from all over the country. It is sponsored by the American Association of Industrial Physicians and Surgeons, which maintains a public forum for all who are interested in the prevention of disease, injury, and disability in industry and in the active supervision and promotion of health in industrial groups.

The opening session, which will be held in the morning, will consist of a symposium on the technical problems of industrial health, this will be conducted from the standpoint of the

adjustment of the working environment to the employees and vice versa. The afternoon session will consider the economics of industrial health, including the organization and cost of a health service and the value of an industrial health service to employer and employee.

The morning of the second day will be devoted to a symposium on the social implications of industrial health, including such topics as the extent of an industrial health service, the practical relation of hospital and medical care to industrial health, the part played by legislation, the evaluation of labor turnover, the lack of trained men, the experiences of management, and the interests of insurance carriers in the medical and social problems presented.

Medical News

MEDICAL PROBLEMS IN THE DEFENSE PROGRAM

SAMUEL J. KOPETZKY, M D , F A C S , New York City

YOU may recall that the philosopher, Bertrand Russell, stated "Thinking is not one of the necessary activities of man. It is the product of disease, like high temperature in illness. The disease in the body politic causes certain men to think important thoughts which develop into the science of political economy."

The first fruits of these thoughts are the development of a reasonable defense mechanism for our safety. I may say, without contradiction, that in my long service within the ranks of organized medicine I have never known the medical profession more united, more cooperative, and more ready to accept the tasks so obviously ours to do as part of the program to defend our country and save our body politic from the contagious infection ravaging Europe. We are doing our part now to save the "American way of life," and we shall win that fight.

We have a potent organization and the program before us is clear. Only the superficial observer seems confused. He senses chaos and confusion because there are all sorts of plans proposed which involve medical service.

Like the circulating blood whose free flow is necessary that the body may continue to live and its parts to function properly, so in all the plans and proposals, concerned as they are with the public welfare, the medical profession is the essential factor. To a great extent the success or failure of these plans is dependent upon how well our profession will function in each one of them. To function at its best, the medical profession must see the human need involved. It must be content to work in the organized setup and it must see that the goal sought is attainable. In each of the proposals and plans, economic sacrifices on the part of the profession are essentially involved. The profession must be convinced that the goal attainable warrants this sacrificial contribution on its part. Consequently and logically, it should have a hand both in the planning and in the medical administration of each to smooth the machinery and keep its medical side functioning adequately.

We desire to cooperate enthusiastically, we desire above all to employ our every useful "yardstick" to each proposal. The quality of medical care and service delivered should never be lowered from that caliber we are wont to deliver, which has won for the American people the finest health level achieved anywhere in the world. In all the plans and proposals and in all the mechanisms of serving the public with medical care, we must maintain this level or better it.

We are organized, the organized profession has stood like a rock against the emotional critics

and embittered partisan assaults aimed at its destruction because it stood for definite principles based on considered judgments instead of on the expediencies that the given moment prompted. Let us remember that our organization does not exist for its own sake but to promote special ends and one of the principles of these is the public welfare. For this reason we survive and shall continue not only to survive but also to serve.

I have been engaged during the current year with the medical side of the Selective Service Law's administration in the New York City area. My study of the health of the age group concerned—from 21 to 35 years of age—has brought to my attention many interesting facts. I have had an actual insight into the statistics of the health of this section of our population. The average health of the group seemed to be good. The figures, based on the examination of 119,242 registrants showed that 42 per cent were inducted into the Army. Thirty per cent were qualified for limited military service, and 26 per cent were disqualified for any military service whatsoever.

No false impression should be assumed from these figures. The Army accepts only the "cream of the crop"—the healthy and the vigorous of the male population. To do otherwise would be folly. Nevertheless, from our standpoint as civilian physicians we must not be led astray by the figures themselves. To be unfit for full military service does not necessarily imply that the individual is therefore unfit to carry on a gainful civilian occupation or that he is unable to be a useful member of civilian society. A small minority are actually disabled. However, the enunciation of this latter postulate must not detract us from striving to attain a program that would result in making future generations present increasingly larger numbers of men fit for the severe exigencies of military service, using the physical standards of this type of service as the measuring rod to gage individual health.

Realizing that although nothing could be done for many who had congenital lesions nor for others who had lesions whose pathology was known but, for the disease which this pathology signified, medical science still stood helpless and futile as far as curative therapy is concerned, nevertheless, there has been a definite effort to study the possibilities of rehabilitation among those men who, on the other hand, presented remediable conditions. Under my own direction this study of the response on the part of the public to this effort is now proceeding. Without going into detail, the results thus far seem to be promising.

This rehabilitation program has connotations far beyond the scope of the rehabilitation of those embraced within the limits of the Selective Service Law. The idea of rehabilitation is, of course, the by-product resulting from the study

President's address, meeting of the Fourth District Branch the Medical Society of the State of New York, at the Lake Placid Club, September 26, 1941.

President, the Medical Society of the State of New York.

of statistics accumulated by the medical examination of the selectees. The percentages of disqualifications increase with each successively older age group.

With advancing age the handicap due to physical defects increases, and this has a bearing upon gainful occupation. The physically handicapped man tends eventually to become an unemployable. The group of unemployables are an ever present problem in our communities.

With these factors in mind, the Medical Society of the State of New York, should give thought to the subject. The topic divides itself into two categories: first, what to do to settle the instant problem presented by handicapped manhood so that it may be a better and healthier group? This means integrating existing facilities, hospital clinics, private practitioners of medicine and dentistry, and the existing eleemosynary lay associations organized to help the public welfare.

It must be realized that remedial therapy is but a stopgap. It puts individuals on their individual road to health. The plans to assure this are being developed without disturbing private practice and with the basic idea of bringing the ailing man into the care of his own doctor. When the case is completed, it closes an individual record. It constitutes strictly an individualized service by doctors to individuals. Of course, in the aggregate, it supplies an intense need but leaves untouched the repetition of its own features in other individuals. Therefore, the problem has deeper factors, which require our careful consideration.

If the prevention of conditions now found among our population is to be enhanced, something more than mere curative therapy must be called into action.

This implies a long-range program whose goal is a definite change in the health level of our people. This program needs much study, requires development of measures aimed at the problem as a whole, so that the statistics revealed by the physical examinations under the Selective Service Law will not become an ever recurring factor in our community life.

In a casual perusal of the factors at issue in this long-range program, there is implied a changed conception of the duties and functions of the school physician, the enlargement of his duties, and the assembly of an adequate staff of special assistants to handle special departments such as physical training, behavior problems, body growth development, tooth preservation, and health standards obtainable by comprehending the essentials of nutrition.

The long-range program has begun to evolve. Noncomprehension of its essentials, however, is not only evident in the profession itself but among the legislators and higher governmental officials concerned with public health.

In each county society I hope to see groups of physicians begin to study one or another aspect of this long-range program. I believe in the maintenance of a strong central organization because such is necessary to make essential and prompt decisions to reach a given goal. Locally, however, each program needs modification according to local needs.

In the official transactions of our Council and the various reports of our standing committees, diverse aspects of this program are beginning to

take form. Our organization exists to clarify medical situations of interest to the public, and whatever actually is good for the public we serve is good for us, too. If one reads the activities of the various programs on the national scale, what I have designated as representing fundamentals on a state scale become no different except that they are magnified by the width and breadth of our country. The wisdom of the American Medical Association in advocating a secretary of health in the cabinet is substantiated by the need of a guiding hand in the development of these programs for the public welfare. I do not mean a health officer in the sense that we have a commissioner of health in our state government. Such an officer is trained and habituated to look at the public welfare mostly from the health officer's standpoint, to better sanitation, to extend preventive measures for communities by making available proved palliatives and prophylactics within the realm of public health medicine, *per se*. Meanwhile, eleemosynary associations of private organizations like the Cancer Control Committee, the Heart Association, the Tuberculosis and Health Association, the League for the Hard of Hearing are all trying to lessen the incidence, prevalence, and recurrence of the diseases in which they are specially interested, and all this comes within the domain of nonpublic health medicine. Does it not seem that the time is ripe for our state to take the lead by establishing, as part of the state government, an officer concerned with these wider aspects of the problems of the health of the people, which task primarily should be the development of that long-range program and the coordination and integration into its very structure of all the available experience of these privately financed organizations? I would see such an officer concerned more with planning and study than with executive direction. He should also coordinate all the health activities of the state.

If the right man is chosen, it will serve as a pilot test for the questions at issue in the programs on a national scale. Sooner or later this will become a necessity, and our state government will come to it. It is germane in these times to know that we are aware of the general need. Many of our people have heretofore concerned themselves with an earnest endeavor to bring more medical care to our people. They seemed hardly concerned with the quality of medical service that they would attempt to deliver. Had they accomplished their goal, any step in real progress that might have reached the roots of the factors at issue in bettering the health of ensuing generations would have been lost for decades, because nothing would have been changed in the fundamental setup of the health control of following generations. Only the cheapest price would have been paid for individually procured medical care. The discoveries of the medical research laboratories might or might not gradually have become available to this cheapened medicine. Medical aid to the afflicted would still have been limited to the care of diseases for which cures are available. The problem of how to prevent the repetition of medical deficiencies in succeeding generations of our population would not even receive consideration because it would be outside of what is normally considered the field of public health

Medical News

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President the Medical Society of the State of New York.

Counties represented were Cayuga, Livingston, Monroe, Seneca, Ontario, Steuben, Wayne, and Yates.

New York County

New York City participants in the program of the Medical Society of the State of Pennsylvania, holding its ninety-first annual meeting, October 8 to 9, at Pittsburgh, included Drs. Chas. Gordon Heyd, speaking on "Common Errors in Selection of Patients for Surgery", Meredith F. Campbell, on "Urinary Obstruction in Infants and Children", and Maximilian A. Goldzieher, on "Diagnosis and Treatment of Pituitary Disorders."

The annual dinner of the New York Society for Clinical Ophthalmology was held at the Park Royal Hotel on September 15. Dr. Iago Galdston, executive secretary, Medical Information Bureau, The New York Academy of Medicine, was the guest speaker.

For the past several years the Health Department of New York City has put more emphasis upon its policy of promoting private physician examinations of children entering elementary school. Since this principle has been pursued with vigor, the percentage of those children in the new admission group examined by private physicians has increased from 14 in 1936 to 25 in 1939 and 27 for the school term, September, 1940-February, 1941.

Among the reasons for encouraging private physician's examinations are: It makes the parents appreciate the value of individualized medical attention which the family physician can best give. The family physician can make a more thorough examination and is in a position to know the child better, as well as carry out treatment. It enables school physicians to give more time to other children needing special attention.

Ontario County

Moving pictures on coramine, provided by a drug firm, were presented by Dr. Malcolm R. Blakelee as the program for the first fall meeting of the Canandaigua Medical Society on September 11. Dr. James F. Maltman, vice-president, conducted the meeting and was host for dinner at Wenna Kenna, East Lake Shore. There were 14 members present.

Pictures showed experimental and clinical results with the drug used in respiratory and cardiac conditions.

At the meeting on Oct. 9, Dr. F. C. McClellan was host, and Dr. A. W. Armstrong read a paper on "Home and Health."

Ontsego County

An address by Dr. Samuel J. Kopetzky, president of the State Medical Society, was the principal feature of the thirty-fifth annual meeting of the Sixth District Branch of the state group held at the Mary Imogene Bassett Hospital in Coopers-town on September 18.

There were six speakers in addition to Dr. Kopetzky. Dr. Gilbert Dalldorf, of Pleasantville, New York, director of the division of laboratories at Grasslands Hospital, East View, New York, spoke on "The Medical Examiner and the Coroner—Is New Legislation Needed?"

Dr. Walter M. Boothby, of Rochester,

Minnesota, a professor of experimental metabolism at the Mayo Foundation and director of the laboratory for research in aviation medicine, spoke on "The Physiology of High Altitude Flying," with motion pictures.

Other speakers were Dr. Hugh Auchincloss, of New York City, Dr. Edward A. Strecker, of Philadelphia, Dr. Robert L. Levy, of New York City, and Dr. Norman H. Jolliffe, of New York City.

Putnam County

The county society, through Dr. F. C. Genovese, Committee on Public Relations, has issued the following warning, published in the county newspapers:

"With the advent of newer and almost miraculous results in the field of chemotherapy resulting from the use of such drugs as sulfanilamide and sulfathiazole in the treatment of septic or streptococcal sore throat, blood poisoning, meningitis, pneumonia, gonorrhea, and other diseases, we are apt to lose sight of the fact that in spite of their magic results on curing disease their use is not without danger.

"Because some of these toxic manifestations result fatally when improperly used, the medical profession warns the public against the use of these drugs in treating themselves. Because of ignorance the cure may be worse than the disease."

Queens County

The county society met on September 23 with the Queensboro Tuberculosis and Health Association and listened to the following program: "Recent Aspects in the Evaluation and Treatment of Pulmonary Tuberculosis," by Dr. Edgar Mayer, assistant physician at New York and Bellevue hospitals, consultant physician at Broad Street Hospital. "Surgical Therapy in Pulmonary Tuberculosis and Its Evaluation," by Dr. Louis R. Davidson, thoracic surgeon, Post-Graduate Hospital, surgeon, Queens General Hospital, director of thoracic surgery, Sea View Hospital. Scientific Exhibit—Kodachrome illustrations of the pathology of tuberculosis—8:15 P.M. Film—"Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis"—8:30 P.M.

The Friday afternoon talk on October 17 at 4:30 P.M. will be "Anemias of Childhood," by Dr. Frederick Wilke, pediatrician at St. Luke's, Babies' and Woman's hospitals.

Dr. H. V. Z. Hyde, officer-in-charge of medical work in the Second Regional Defense Area, which includes New York City, will address the open forum on defense activities which is to be held by the Queens County Medical Society Auxiliary in the Medical Society Building on Queens Boulevard, Forest Hills, October 22.

Dr. Luvia Willard, of Jamaica, chairman of the American Women's Reserve Corps, Queens Branch, will speak on allied matters.

Rensselaer County

Troy's new Medical Division of Civilian Defense met on September 12 at the Health Center to draw up plans of action in event of a bombing or other war catastrophe.

Dr. James H. Flynn, commissioner of health,

medicine—that of bringing medical care to the general population.

We should still see muscular development and muscular strength confused with inherent good health. We should still see exercise taken vicariously by thousands watching football, baseball, or hockey games instead of entering into these healthy sports themselves for their own improvement. We should still be content to see attempts on the part of government to appropriate millions to develop "little Sandows" whose eyesight and whose teeth were poor, who might have chronic discharging ears or an inherited tendency to deafness which would make them unable to hear when they reached middle age, but who could lift weights and swing dumbbells!

While great events are taking place, let us not forget our training. Each day that we serve the sick we also profit and learn something helpful for use in subsequent days. So, too, do we gain

when organized. Our particular organization has gained wisdom in handling community medical problems, it is the collective knowledge translated and tested by experience covering many years of study. We must guide our people with idealism to a brighter and better future.

Idealism has been held the offspring of suffering and hope. It reaches its maximum when a period of misfortune is nearing its visible end. At the end of a period of great economic depression among us and at the height of the suppression of freedom in Europe, with its enslavement of labor and the concomitant degradation of personal human dignity, perhaps the environmental circumstances are such that our own idealism is enhanced, and we may follow with assurance those who lead the way to a better future and healthier succeeding generations upon the American scene while we continue to live our lives in the "American way."

County News

Albany County

Albany's health defense plan initiated by a series of public meetings earlier in the year by Albany Medical College and Hospital, the Hospital Council, and the Albany County Medical Society was described before the annual convention of the American Hospital Association by E. W. Jones, director of Albany Hospital, on September 15. He added "We expect to continue our efforts during the fall and winter season, not only in presenting a second series of health talks but in providing speakers to appear before all types of organizations to discuss all phases of health improvement activities. I believe that many of you can find much of value in our 'Albany plan.'"

Chautauqua County

The Eighth District Branch meeting of the State Society was held in Jamestown on October 2.

Chenango County

Ill only a few hours, Dr. Frederick Eugene Roper, oldest practicing physician in Chenango County, died suddenly at Chenango Memorial Hospital on September 8, aged 77. He was a graduate of the Cleveland Homeopathic College and had practiced medicine for fifty-five years.

Cortland County

A joint dinner of the Cortland Bar Association and county society was held at the Cortland Country Club on September 19.

Principal speaker at the dinner was Dr. Harry S. Fish, of Sayre, Pennsylvania, surgeon of the Tioga County General Hospital in Waverly, New York.

Delaware County

Dr. George U. Carneal, of New York City, addressed the county society at its meeting on September 16 at the Elm Tree Restaurant in Delhi. A practicing surgeon in the metropolis for about twelve years, Dr. Carneal discussed "Varicose Veins and Cystic Conditions," illustrating his talk with slides and movies.

Jefferson County

Tribute was paid to the memory of the late Dr. Gilbert A. Foote, of Dexter, during the first meeting of the season of the county society, held at the Black River Valley Club on September 11.

A committee was appointed to draw up suitable resolutions on the death of the veteran physician, and the resolutions were read before the group at the meeting.

Dr. F. R. Calkins, president of the society, presided. About 45 doctors attended the meeting. Dinner was served at 6:30.

The speaker was Henry H. Kessler, Ph.D., M.D., Newark, New Jersey, whose topic was "The Rehabilitation of the Physically Handicapped." The doctor demonstrated his lecture with sound motion pictures.

Madison County

The Oneida Medical Society held a dinner meeting in Hotel Oneida on September 11 and discussed plans for the fall season.

Dr. Felix Ottaviano gave a talk on "The Paraffin Pack in the Treatment of Pulmonary Tuberculosis." The paper was based upon a four-year survey made by Dr. Ottaviano, who has specialized in tubercular cases.

Monroe County

Some 300 physicians from eight counties in central and western New York gathered September 25 for the annual meeting of the Seventh District of the State Medical Society, in Rochester.

Dr. Walter Dandy, Johns Hopkins University, was the principal speaker at the convention. He discussed brain surgery. Another speaker was Dr. Samuel Kopetzky, president of the State Medical Society and director of Medical Defense for New York State.

Recent findings of Dr. George H. Whipple, dean of the University of Rochester's Medical School, on blood substitution in case of emergency were discussed.

Other Rochester speakers were Dr. James H. Sterner, head of laboratory of industrial medicine of Eastman Kodak Company, Dr. James A. Quigley, Dr. Albert D. Kaiser, and Dr. Merle Scott.

Hospital News

Nurse-Famine Closes Floors of City Hospitals

TWO large hospitals in Queens had to close completely equipped floors in August because of the shortage of nurses. Flushing Hospital closed its sixth floor and part of the fifth, and two floors were closed at the Triboro Tuberculosis Hospital.

Growing opportunities in industry and in public health services of one kind or another, as well as the needs of the Army Nursing Corps, are creating a shortage of nurses available for duty in hospitals all over the United States, it is indicated in a survey of the city's hospitals and other agencies. In the main, the nurses are going into other fields because they offer better wages and more attractive working conditions.

There are 400,000 nurses in the United States, according to the information bureau of the American Nurses Association, of whom 23,000 are in public health service. This field, which is growing larger every year, includes visiting nurse services, city, county, and state health departments, welfare departments, clinics, schools and private social agencies. Each of these embraces a variety of specializations, such as orthopedics, prenatal work, pediatrics, tuberculosis, and psychiatry.

Moreover, as the nation's industry booms, increased personnel brings with it the need for expanded medical and first-aid service. Department stores, banks, and other firms are increasing their medical departments. Significantly, the number of patients able to pay for private nursing care in the home is increasing. Although this type of income is not the most lucrative and steady in the long run for the nurse, its temporary advantage—high wages—is attracting many nurses from other fields.

The American Red Cross, which is the nursing auxiliary of the United States Army, assigned some 4,371 reserve nurses to active Army service during the year ended July 1. Normally, the Army has about 1,324 regular nurses.

Army nurses receive only \$70 a month, plus maintenance, but many are attracted to this service by the ranks they hold—lieutenant, captain, and so on—as well as travel opportunities and other privileges.

Among other reasons for the increasing shortage, marriage was found to be an important factor. Some nurses have married men who are able to support them without the nurses' own income, while some married nurses have retired to protect their husbands from being called up under the Selective Service Act.

Dr. Edward N. Bernecker, general medical superintendent of the New York City Department of Hospitals, reported that the department was about 300 nurses short of its normal complement of 5,797.

"They're paid better," Dr. Bernecker commented in explaining why nurses are leaving hospital service. "They get shorter and more convenient hours, and their work is not so difficult—

certainly nicer than hospital work. We're short of nurses, and it's going to be worse."

He said the shortage was primarily responsible for the department's inability to open 160 beds at Triboro Tuberculosis Hospital, Parsons Boulevard and Goethals Avenue, Jamaica, Queens. However, he added, no other hospital's services have been affected. The nursing division of the department explained that the present nurses simply have more work to do.

The department, which now conducts six nursing schools, will open a new one at Fordham Hospital.

Newsy Notes

Following a request by four of Albany's hospitals, a committee of the Board of Supervisors is studying the possibility of a publicly owned hospital in Albany County. The Albany hospitals in their request reported an increase of approximately 25 per cent in rates for welfare cases.

The matter was referred to the committee after a communication from Welfare Commissioner Leo M. Doody had been read. He said present rates paid to hospitals should be sufficient. He argued it might be more advisable to build and operate a public hospital than to pay the increases.

The four Albany hospitals said they had sustained losses totaling \$251,330 in caring for medical indigents of Albany County in 1940 and indicated that they face insolvency unless relief is afforded.

The hospital communication pointed out that because of their financial problem an increase for private and semiprivate rooms went into effect July 1. This, they said, is due to rapidly increasing labor and material costs. They asked the board to petition the State Welfare Department to permit allowances to clinic indigent cases so the county may be reimbursed partly by the state.

Skidmore College at Saratoga Springs, which since 1922 has conducted a nurses' training course through affiliation with the Mary McClellan Hospital in Cambridge, has transferred its collegiate course in nursing to the New York Post-Graduate Medical School and Hospital in New York City. This announcement was made by Dr. Henry T. Moore, president of the college, and Dr. Arthur F. Chace, president of the board of directors of the New York Hospital. A five-year course will be given by the college and hospital and will lead to the bachelor of science degree in nursing.

Bedeveled by rising commodity costs and lower yield from invested funds, St. Luke's Hospital, Amsterdam Avenue and 113th Street, ended 1940 with a net operating loss of \$604,-

was named chairman of the Division by Mayor Frank J Hogan

Dr Flynn has appointed a medical advisory council to aid him in formulating medical defense plans

Members of the council include Dr Irving Walsh, representing the Rensselaer County Medical Society, Miss Grace Allison and Mrs Walter Phelps Warren, representing Samaritan Hospital, Sisters Vincent and Margaret Mary, Troy Hospital, Mrs. Mary Reed, American Red Cross, Miss Catherine Tierney, representing nurses of the city, Miss Palma Ferraro, Leonard Hospital, and A. Leonard Barton, area Boy Scout commissioner

Dr Flynn said that it was suggested to set up first-aid stations at each hospital. Physicians and nurses of each hospital will form these units.

Provision for making beds, cots, blankets, first-aid kits, and other articles available when needed was also discussed.

Steuben County

Approximately 100 lawyers and doctors attended the annual joint luncheon-meeting of the Steuben County Bar and Medical associations at the Hornell County Club on September 11

Guest of honor at the luncheon was Supreme Court Justice Nathan D Lapham, of Geneva Principal luncheon speaker was Professor Lyman

P Wilson of Cornell University His subject was "Doctors on the Witness Stand."

Dr John Conway, chairman of the Steuben County Defense Council, announced the appointment of Dr R. J Shafer, of Corning, as chief of emergency medical services in the county The appointment was made on a request by Governor Lehman. Dr Shafer is director of Steuben County's laboratories and chairman of the county medical advisory committee.

Suffolk County

Dr Vincent J McAuliffe, of Huntington, a specialist in diseases of women, died on September 8 in the New York Hospital of heart disease after an illness of five days. He was 49 years old.

Tioga County

Dr J B Schamel, of Waverly, was nominated for the presidency of the county society at the September meeting at the Jenkins Inn, Waverly

Other officers nominated were vice-president, Hiram Knapp, Jr, Newark Valley, secretary, treasurer, Dr Ivan Peterson, Owego, delegate to state convention, Dr Corbet Johnson, Spencer, alternate, Dr F K Shaw, Waverly, censors, Drs F H Spencer and Fred Carpenter, of Waverly, and Dr John Jakes, of Candor Officers will be elected at the December meeting

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
George A. Armstrong	82	N Y Univ	August 9	Utica
Harold W Bell	64	P & S N Y	September 10	Camden
George H Craft	68	Buffalo	September 1	Newark
Christian G Hacker	64	Albany	September 20	Albany
Edward K Harrison	38	P & S N Y	September 16	Ossining
Isidore M Lashinsky	53	Fordham	July 19	Bronx
Edward H Levy	42	Cornell	September 24	Saranac Lake
Julius Michaelis	66	L I C Hospital	September 21	Brooklyn
Hallie M Rathff	57	Med Col Va	September 29	Manhattan
Frederick E. Roper	77	Cleveland Hom	September 8	Norwich
Frank W Shipman	71	Bell	September 20	Mount Vernon
Glenn W Smith	44	Univ & Bell	September 4	Warwick
Henry McH Stephens	39	Emory	September 25	Manhattan
Harry B Townsend	70	Univ & Bell.	September 18	Penn Yan
Thomas E Waldee	57	Cornell	September 18	Manhattan

BRITISH NUTRITION EXPERT GIVES THE POTATO A HAND

Advice to Britishers in wartime from Sir John Boyd Orr, expert on nutrition, leader in the League of Nations' committee on nutrition, gives the lowly potato a hand

After milk (and Britain has enough milk to drink a fifth more) and vegetables (and Sir John says eat twice as much), the most important food produced in the tight little isles is the potato. It is a protective food, the main source of one of the vitamins. In England an average of only 4 pounds of potatoes per week per person are eaten. Some countries eat twice as much.

"Some women are afraid to eat potatoes because they think they are fattening," remarked Sir John. "This is nonsense. 1 lb of bread and butter is more fattening than 4 lbs of potatoes."

"If you think you are too fat, cut out the bread and butter and eat potatoes and vegetables. In a time of threatened food shortage, the potato is by far the most important crop, because, in addition to its special health value, it gives the highest yield of food per acre. An acre of potatoes gives twice as much food as an acre of wheat."

—Science News Letter

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448 26, according to the eighty-second annual report of the institution

"Obviously, St. Luke's must either have more income for charity work or begin to curtail its services," said Lincoln Cromwell, president of the institution

In 1940 St. Luke's free service cost more than \$450,000, putting it at the head of the list of the city's voluntary hospitals in the percentage of charitable service

"At Long Island College Hospital the stork's more than frequent visits found the hospital running out of cribs in which to put the newcomers," relates the Brooklyn *Eagle*. "Did hospital officials set up an alarm about needing new equipment to cope with the added numbers of their little guests? Did they ask that new cribs be provided for what in all probability is a temporary condition, growing as it did out of last year's great increase in marriages?

"They did not. They found some orange crates, a good mechanic, hammer, nails, a saw, and some paint. The result was perfectly acceptable bassinets, fit to care for any baby of high or low degree. Time was when in anticipation of the blessed event a wash hamper was set aside for use and, with a hot iron carefully wrapped in blankets, it often served as an effective incubator.

"Using the orange crates in the present emergency is an example of ingenuity worthy of study and emulation."

The Thompson Memorial Hospital in Canandaigua is to have a new ambulance.

A new plan of student government under which nurses in training at Edward J. Meyer Memorial Hospital in Buffalo would direct their own activities in a highly democratic procedure is being considered by hospital authorities. Some of the aims of the new program are

1 To develop loyalty by developing group consciousness

2 To stimulate a larger interest in government and the welfare of the nursing school

3 To promote social development

4 To foster appreciation of the rights of individuals

A discussion club would be organized, debates conducted, democratic elections held, cabinet members appointed, and chairmen named for various activity committees

The U. S. Navy commissioned a new 400-bed hospital ship, the "Solace," August 9, 1941, at the Naval Hospital, Brooklyn. Her equipment includes six wards, two general operating rooms, an eye, ear, nose, and throat operating room, a urologic operating room, an x-ray department, a physical therapeutic department, a pharmacy, and a clinical laboratory. Through a specially constructed elevator, patients can be

removed with a minimum of disturbance from ward to ward or from ward to the operating rooms. There is ample deck space for convalescents as well as for the recreational activities of the ship's company. Meals prepared in a diet kitchen will be served to patients on compartment trays brought to their bedsides in electrically heated food carts. Each ward has its own pantry. In addition to her regular crew of 390 men and 35 officers, the "Solace" will carry thirteen medical officers, three dental officers, thirteen nurses, three pharmacists, and 139 hospital corps ratings. Captain Harold L. Jansen is the senior medical officer in charge of hospital facilities.

Improvements

A proposed Tarrytown-Dobbs Ferry Hospital, affording the most modern facilities and an ultimate 150-bed capacity, to be established in the former Luke estate on South Broadway, Tarrytown, is being studied by officials and directors of the two hospitals which would be merged.

Construction of a five-story addition to Rochester Municipal Hospital by W. P. A. awaits a conference between city and W. P. A. officials. Estimated cost of the work is \$77,378 and includes enlargement of the existing connection with Strong Memorial Hospital.

"The construction depends on whether W. P. A. can furnish the required skilled labor to go ahead with the project," Commissioner of Public Works William H. Roberts said.

The project has approval of W. P. A. in Washington, following City Council action, and now awaits only State W. P. A. check and approval for work to begin—if W. P. A. can supply the necessary labor.

An application for a grant of \$687,502 from the Federal Government for alterations and improvements to the Edward J. Meyer Memorial Hospital in Buffalo has been rejected. Mayor Thomas L. Holling was notified by Charles D. Drew, New York State projects manager. The mayor was informed that a \$50,000 allotment would be approved for urgent fire protection.

The Margaretville Hospital has a new \$2,500 x-ray machine and equipment.

Overcrowding now and anticipation of a possible emergency are given as reasons for a move to seek federal funds for a \$75,000 improvement to Monticello Hospital.

Malabar Hospital is raising \$15,000 for a new Maternity Ward.

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Medicolegal

LORENZ J. BROSNAN, ESQ.

Counsel, Medical Society of the State of New York

Diagnosis of Fracture

AN INFANT, eighteen months of age, was brought by his mother to the office of a physician who devoted a great part of his practice to pediatrics. She told the doctor that the boy had fallen and seemed to be in pain. The child was promptly examined by fluoroscope for the purpose of ascertaining whether there were any fractures present and such examination was negative for fracture. Manual examination likewise showed no evidence of fracture. The left foot was somewhat swollen, which swelling extended to just above the ankle. The child seemed to suffer from some pain but was able to walk. The doctor bandaged the boy's ankle and instructed the mother to keep him off his feet and also suggested that x-rays be taken but the mother refused, claiming the expense would be too great. Five days later the child was brought back and an examination revealed no evidence indicative of fracture although, at that time, the child was unable to bear weight on his leg. The

bandages were renewed. The child was never thereafter seen by the doctor.

It seems that about two weeks later it was discovered at a hospital by x-rays that there was a healed fracture of the left tibia in excellent position with no bony infection.

A malpractice action was instituted on behalf of the child in which it was claimed that severe injuries resulted from the defendant's failure to diagnose a fracture. A physical examination prior to the trial revealed that the child walked entirely without a limp and that there was absolutely no deformity present after a year and a half had elapsed. The end result apparently was a perfect one.

The case was tried before an official referee and at the end of the whole case a verdict on the merits was rendered in favor of the defendant thereby exonerating him of the charges of malpractice which had been made against him.

Treatment of Xanthelasma

A YOUNG woman consulted a physician who specialized in the treatment of eye diseases, with respect to a condition of xanthelasma consisting of several patches, yellowish in character, on the lids of each eye extending from the eyelid about one inch down. She told him that nine years before the condition had been removed with electric needle, and three years later it had been removed with a knife, and two years thereafter by scissors. However, after each of said treatments, the condition had returned.

The physician undertook to treat the xanthelasma by the use of the application of chromic acid. Two such treatments were administered and after the second a slight reaction was noticed on the left eyelid consisting of a pulling down of the eyelid described as ectropion.

A malpractice action was instituted on behalf of the patient in which the plaintiff claimed that she had been disfigured owing to the negligent use of acid. On the trial of the action, before a judge and a jury, it was the contention of the plaintiff that the eyelid had been pulled down by scar tissue as a result of the defendant having improperly permitted the acid to touch healthy tissue. It was the position of the defendant that the patient had received a reaction which sometimes is unavoidable with the proper use of acid. The plaintiff failed upon the trial to introduce sufficient medical expert testimony to establish a prima facie case that the defendant had been guilty of malpractice in treating the plaintiff. For that reason, the case was dismissed by the court on defendant's motion.

Licensing of Foreign Physicians

A FEW weeks ago our highest State Court, the Court of Appeals, rendered a decision in an important and interesting case involving the attempt of a physician, who recently came here from another country, to become a licensed practitioner of medicine in New York.

It seems that the petitioner, M., had received a license from the government of Austria to practice medicine in 1899. He had, it seems, graduated from a gymnasium after nine years' attendance, after which he took a five-year course at the University of Vienna Medical School. From 1919 to 1933 he was head of a clinic and laboratory for postgraduate instruction in neurology and occupied the position of director

of that institution. Aside from teaching, M. was the author of numerous scientific articles.

In 1938 he left Austria as a refugee and came to this country. In a few months he declared his intention to become a citizen of the United States. In 1939 he received appointment in New York as clinical professor of neurology at a medical school and research neuropathologist at a hospital. That same year he took and passed an examination in English given by the Department of Education, and endeavored to obtain the right to practice medicine by endorsement of his foreign license.

Under the provisions of the Education Law three alternatives were open to M. One of them required a licensing examination, another was to

* Matter of M v Cole—Decided by Court of Appeals July 29, 1941.

seek endorsement of his foreign license "Upon satisfactory evidence that the requirements for the issuance of such license were substantially the equivalent of the requirements in force in this State when such license was issued, and that the applicant has been in the lawful and reputable practice of his profession for a period of not less than five years prior to his making application for such endorsement", and the third was under Section 1259 of the Education Law whereby "The Commissioner of Education may in his discretion on the approval of the Board of Regents indorse a license or diploma of a physician from another State, or country, provided the applicant has met all the preliminary and professional qualifications required for earning a license on examination in this State, has been in reputable practice for a period of ten years, and has reached a position of conceded eminence and authority in his profession."

M chose the latter course and attempted to become licensed as a person who had "reached a position of conceded eminence and authority in his profession." He filed various letters of recommendation and was accorded opportunities to be heard by the Board of Regents. The Board denied the application for endorsement of the foreign license on the grounds that M had not in their opinion reached a position of conceded eminence and authority sufficient to entitle him to the endorsement.

The Austrian physician then instituted a proceeding in the Supreme Court to obtain an order directing the Commissioner of Education and the Board of Regents to endorse his Austrian medical license. At Special Term the application was granted and the respondents appealed to the Appellate Division of the Supreme Court. The majority of that Court affirmed the ruling of Special Term but there was a dissent. The respondents carried the matter to our Court of Appeals which has now, by a five to two decision, ordered a reversal and ordered a dismissal of the proceedings.

That Court, in arriving at its conclusion, reviewed the instances in the past that Section 1259 had been invoked to permit the endorsing of licenses of persons of "eminence and authority." It was found to have only been utilized four times in the past. In the opinion, the Court said in part

"In the case at bar, after an oral hearing and after petitioner's application had been before them for consideration upon three separate occasions, appellants have come to the determination that the eminence of this applicant does not satisfy the standard required by the statute as it has been interpreted by them in the past. It is thus determination which we are asked to declare to be arbitrary, unfair and capricious upon this record. It is our opinion that such is not the case.

"It is not claimed here by the petitioner nor does the record show that this petitioner is responsible for any outstanding original contribution to any field of medicine. Thus, if the eminence of petitioner is in any way to satisfy the high degree of eminence which has been set as a prerequisite for the indorsement of a medical license, it must be shown that his eminence in the field of neurology is so great that it can be said to be arbitrary, unfair or

capricious for appellants to have refused to make an exception to the general standard in his case.

"A careful examination of the record in the case at bar reveals that such is not the case. The record shows that petitioner has an enviable record as the Director of the Neurological Institute at the University of Vienna from 1919 to 1938, that he was in active practice in Vienna from 1905 to 1938, and that he has published about two hundred scientific papers and books written in his native German tongue as well as being accorded membership in the American Neurological Society. Upon his enforced emigration to America, Dr M has continued his career and has received an appointment as a Clinical Professor of Neurology at A and as Research Neuropathologist at the B Hospital. The letters from his friends, former students, and associates in the field of neurology clearly show that he has attained their esteem and respect as a medical teacher and practitioner. This evidence, while it is impressive, does not sustain the contention that appellants must make an exception to their general standard in Dr M's case because their refusal to be satisfied that he ranks among the few outstanding men in his profession as evidenced by universal recognition and outstanding appointments to positions of high responsibility in this State is arbitrary, unfair or capricious.

In the case at bar neither were appellants satisfied that the evidence of his eminence in his profession introduced by Dr M proved that they should make an exception to their general standard in his case, nor was this evidence so overwhelming that we can say as a matter of law that their refusal to make such an exception was arbitrary, unfair or capricious. It follows that in the case at bar the refusal by appellants to indorse petitioner's medical license was not an abuse of their discretion. Since the Board of Regents has determined that Dr M has not shown that he is of equal eminence with any of the other four persons who have been licensed pursuant to this Section, that determination is binding upon us.

"Petitioner does not allege, nor is there any evidence to support a claim, that the standard which has been adopted by appellants is arbitrary or unreasonable. The law is well settled that it is not always necessary that license legislation prescribe a specific rule of action. Where it is difficult or impractical for the Legislature to lay down a definite, comprehensive rule, a reasonable amount of discretion may be delegated to the administrative officials. Where the administrative agency has adopted a standard as an interpretation of the broad powers granted to it by the statute, we may declare such a standard invalid only in the event that it is so lacking in reason for its promulgation that it is essentially arbitrary.

"In view of the liberality accorded by New York State to practitioners of other States pursuant to Sections 51 and 1256 of the Education Law, as well as the numerous applications made by noncitizens to practice medicine in New York, the interpretation of the powers confided to them by the Legislature through

the provisions of Section 1259 is not unreasonable. Thus in the case at bar, where the Board of Regent has interpreted the words 'conceded eminence and authority in his profession' to mean an outstanding original contribution to a certain field of medicine or standing among

the first few men of his profession as evidenced by universal recognition and outstanding appointments to positions of high responsibility in the State, such interpretation cannot be said as a matter of law to be unreasonable or arbitrary."

HOSPITALS AND NURSES AIDING BRITISH COLLEAGUES

Physicians and nurses of the United States have quietly stepped into war relief work giving benefits, contributing money, offering their time and help in many ways, a report, recently made by Mrs Coda Martin of The British War Relief Society, discloses. Mrs Martin is director of the Society's Medical Aid Department with headquarters at 730 Fifth Avenue, New York City.

Although most of the activities to date have been in New York City and vicinity, plans are now under way to launch a nation-wide drive among hospitals, doctors, and nurses for funds to purchase supplies and equipment for 800 voluntary British hospitals. Many benefits are now being arranged for the fall and winter seasons.

A large proportion of the money collected to date has been raised through the Greater New York Hospital Association, which in December, 1940, voted to give complete cooperation and assistance to the B W R S through the Medical Aid Department by raising funds in its 100 member hospitals. A goal of \$50,000 was set.

James U Norris, now president of the Greater New York Hospital Association, was appointed chairman of a special committee to organize the personnel of the hospitals but in September, 1941, Miss Mabel Davies, superintendent of Beekman Hospital, was appointed the new chairman. Serving on this committee are the following people: Dr Claude W Munger, director, St Luke's Hospital, Mr John F McCormack, superintendent, Presbyterian Hospital, Dr W B Talbot, superintendent, Post-Graduate Hospital, Mr Wm. B Seltzer, superintendent, Bronx Hospital, Dr E M Bluestone, director, Montefiore Hospital, Rev John

J Bingham, superintendent, New York Catholic Charities, Rev C O Pederson, superintendent, Norwegian-Lutheran Deaconesses' Home and Hospital, Brooklyn, Mr Boris Fingerhood, superintendent, Israel Zion Hospital, Brooklyn, Mr John H. Olsen, superintendent, Richmond Memorial Hospital, Staten Island, Miss Mabel R. Davies, superintendent, Beekman Hospital, Dr Joseph Turner, director, Mt Sinai Hospital, Miss Isabel Byrne, superintendent of nurses at Roosevelt Hospital and president of the Thirteenth District Nursing Group, New York City.

To date, 16 of these hospitals have given benefits and raised a total of approximately \$9,000 at a cost of less than 1 per cent. Others have scheduled benefits and parties for the early fall.

Mrs Martin expressed the hope in her report that this winter voluntary hospitals in other cities all over the United States will also organize to give benefits and that the drive will become a national campaign.

A number of nurses' homes and individual nurses in Greater New York have given benefits and contributions independent of the efforts of the voluntary hospitals. These contributions total more than \$5,000.

A campaign has been conducted by the Physicians' Committee of Greater New York, which was formed in April, 1941, by Mrs Martin, director of the B W R S Medical Aid Department. Many doctors have given outright contributions, and others have pledged certain sums each month for the duration of the war.

A similar committee for all members of the dental profession of Greater New York is now being organized.

JOINT STATEMENT

U S CIVILIAN DEFENSE AND AMERICAN RED CROSS

According to the joint statement issued by the U S Director of Civilian Defense and the Chairman of the American National Red Cross, the state and local defense councils are the official agencies responsible for the coordination of all available resources that may be required for civilian protection in the event of belligerent action.

Defense councils should, therefore, acquaint themselves with the resources of the local Red Cross chapters in providing food, clothing, shelter, nursing care, transportation, and other basic necessities and should integrate them into the comprehensive local program.

Duplication of trained and experienced personnel and of available supplies of the Red Cross should be avoided except where supplementation

is essential to meet the anticipated needs of the community.

September 18, 1941

GEORGE BAHR, M D
Chief Medical Officer
Office of Civilian Defense

In cooperation with the American National Red Cross, the New York State Health Preparedness Commission is completing a survey of the current facilities and activities of the individual Red Cross chapters in New York State. This information will be placed in the hands of the chairmen of the defense councils and the chairmen of the county health preparedness committees to assist them in planning full utilization of the Red Cross facilities in the development of the Civilian Defense Program in their communities.

Woman's Auxiliary

To the Medical Society of the State of New York

County News

Albany On September 24 a membership tea and a combined business meeting was held.

Cattaraugus On August 5, 1941, about 35 guests assembled at the Olean House, Olean. Mrs. Carlton E. Wertz, guest speaker, and Mrs. Walter Rennie, both of Buffalo, were present, and a luncheon was served in the Colonial Room of the hotel. The following officers were elected: Mrs. E. C. Moore, Olean, President, Mrs. A. L. Remals, Olean, first vice-president, Mrs. R. L. Tschoff, Gowanda, second vice-president, Mrs. R. F. Garvey, Olean, recording secretary, Mrs. D. J. Maloney, Olean, corresponding secretary, and Mrs. C. A. Greenleaf, Olean, treasurer. On September 8, 1941, a board meeting was held at Olean, and the following committees were named: membership—Mrs. H. G. Storer, program—Mrs. M. G. Sheldon, public health and public relations—Mrs. J. P. Kane, economic—Mrs. A. J. Lorenzo, home and hospitality—Mrs. W. C. Goodlett, press and publicity—Mrs. L. D. Gunn, historian—Mrs. R. C. Peale, and telephone—Mrs. N. P. Johnson. Meetings are to be held the first Monday in October, December, February, and April. On October 6, 1941, a general meeting was held at the Evergreen Tea Room at Great Valley.

beauty and romance of this distant country but giving a clear and interesting résumé of the medical care and hospital facilities in India. At this meeting the members discussed the advisability of meeting every month instead of the six meetings held last year. Everyone was in favor of this change. A motion was made that the Bylaws be revised and that we meet every month, the alternate month to have no guest speaker but to serve as a sewing or knitting bee for the British War Relief. It was also unanimously decided to continue our help with the Summer Camp at Pine Crest Sanatorium—a project that included all of Herkimer County insofar that privileged children were given the advantage of a summer camp with trained counselors, balanced diets, and the chance to improve not only physically but mentally and socially as well. We have decided to make this our pet activity. This year we held a county-wide card party and raised \$70, with which a slide was purchased for the playground. We feel that these meetings will bring us closer together, that we will enjoy the contacts we make and will be more closely united not only as an auxiliary to the Medical Society but as friends.

Convention Notice The Convention is to be held at the Waldorf-Astoria, New York City, from April 27 to 30. The Convention Chairman of the State Medical Society is Dr. J. L. Bauer, 984 Bushwick Avenue, Brooklyn. Let us all mark these in our datebook.

Did you read "A Personal Inventory" in the spring *Bulletin*? If you did, let us read it again. "When we join the Auxiliary, do we think 'How much is there in it for me?' or rather 'How much can I do through this organization to promote good health and right feeling toward medicine in my community?' and 'How much service can I render?' Silence may have been golden in the days gone by, but in these chaotic times action may be worth its weight in platinum. A person may be intelligent but, if he simply hides his light under a bushel, he is no different than any other clod. As a part of a great whole, the wives of these fine medical men in this country, we must put aside petty jealousies and pet ideas and work for the accomplishments that will benefit all in the end. One officer must continue on with the work of the predecessor, provided it is a step forward. Living today and serving through the Auxiliary, are we making our communities better than each citizen of this grand Democracy may have a finer, healthier, happier place in which to live? We build on the past for the future. Take stock of our resources, material and human, and then create in others the will to use what we shall pass on to them. We must work diligently, yet unconspicuously, remembering always that we are just the auxiliary or the aid to the medical profession."

Erne The auxiliary began its active fall season with the first executive board meeting on September 10, in the board rooms. A business meeting was held with a full quota of members present. The big project before Erne County was the Eighth District Branch Meeting at Jamestown on October 2. The newly formed Chautauqua Auxiliary acted as hostess this day. A special luncheon was given with the doctors and their wives together in joint meeting. Mrs. George Adams, our own president, was present with a welcome to all Auxiliary members.

Fulton A business meeting was held at the home of Mrs. J. Edward Grant, of Northville, and activities for the fall and winter were discussed. A report on the card party at the Adirondack Inn, Sacandaga, in July by the Auxiliary for Bundles for Britain netted the unit \$114. This will be divided equally between the Gloversville and Johnstown branches of the organization. The auxiliary has made it possible for one underprivileged child to spend one week at the Fulton County Children's Camp this summer. Refreshments and a social time followed the business meeting.

Herkimer The first fall meeting of the auxiliary was held at Mrs. Smith's Corner House in Herkimer, with Mrs. Horace Morey presiding. Twenty members were present. The guest speaker was Mrs. Marcus DeWolfe who spoke to the members on India. Mrs. DeWolfe lived there several years and her talk was both fascinating and instructive, touching not only on the

Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

REVIEWED

Infantile Paralysis Edited by W L Colze
Volume A40 of the *International Bulletin for Economics, Medical Research, and Public Hygiene* Octavo of 179 pages, illustrated New York, National Foundation for Infantile Paralysis, Inc., 1939-1940 Paper

This small volume contains the latest developments in research, prophylaxis, and methods of treatment of infantile paralysis. It is sponsored by the International Foundation for Infantile Paralysis.

Eminent authorities such as Drs Josephine B Neal, W Lloyd Aycock, James D Trask, Albert B Sabin, John A Toomey, and authors from European countries have contributed short, terse, instructive articles making this report one that should be in the hands of every physician in order that he may have the most up-to-date scientific evaluation of the problem of infantile paralysis.

The individual articles have been well chosen, and the authors are qualified to speak with authority in the field they represent. One cannot praise too highly a volume of this nature.

JOSEPH L ABRAMSON

The Doctor Takes a Holiday An Autobiographical Fragment By Mary McKibbin-Harper, M D Octavo of 349 pages, illustrated Cedar Rapids, Iowa, The Torch Press, 1941 Cloth, \$2.50

Dr McKibbin-Harper, editor of *Women in Medicine*, official publication of American Medical Women, among many other trips made a two-year tour of the world. This was something of a busman's vacation. We visit with the doctor, therefore, most of the outstanding points of interest but are brought into close contact with many of the local medical problems and conditions. Because of her official position and special interest, the author has emphasized, and rightly so, the fine work done by the many women practicing medicine throughout the world. One reads on page 182 of "two hundred women's hospitals in India staffed entirely by women, as well as women's wards in various hospitals over India under the care of women doctors." The chapters dealing with the Holy Lands, India, and China are particularly interesting and instructive. Dr McKibbin-Harper has an open mind and a seeing eye.

JOSEPH RAPHAEL

Emergency Surgery By Hamilton Bailey, F R C S Fourth edition Octavo of 944 pages, illustrated Baltimore, William Wood & Company, 1940 Cloth, \$15

Doctor Bailey's fourth edition of *Emergency Surgery* has provided the reviewer with many hours of interest and admiration on the excellent manner in which the work has been presented.

There is reference to practically every subject that might be of interest and aid to the surgeon. Included are both the simple and more difficult

procedures presented in a concise manner which together with 930 illustrations including many in natural color, have made this volume one of the most interesting and complete ever published.

RALPH F HARLOE

Diagnostic Procedures and Reagents. Techniques for the Laboratory Diagnosis and Control of the Communicable Diseases. First edition. Octavo of 353 pages, illustrated New York, American Public Health Association, 1941 Cloth, \$2.75

This book, compiled by experts for the American Public Health Association, makes a valuable addition to the list of laboratory manuals. The material is presented clearly and concisely and in a manner easy to understand. Although the scope of the work is limited to communicable diseases, there is much information applicable to the diagnosis of other diseases of infectious nature. The book deserves, and almost certainly will receive, a warm welcome by workers in public health and hospital laboratories.

ALVIN HOLLANDER

Mental Disease and Social Welfare By Horatio M Pollock Quarto of 237 pages, illustrated Utica, State Hospitals Press, 1941 Cloth, \$2.00

This timely publication, dedicated to Dr William J Tiffany, New York State Commissioner of Mental Hygiene, brings into one volume a number of outstanding studies, largely of a statistical and sociologic nature, already published by the author. Dr Pollock is uniquely qualified to write authoritatively upon these phases of preventive psychiatry, psychopathologic studies, and sociologic trends, having served the New York State Hospital Commission as statistician and editor since 1911.

The contents include chapters on the social significance, expectation, and outcome of mental diseases in the United States, economic loss and the effects of the economic depression in relation to mental disease, trends in outcome of general paresis, recurrence of attacks in manic-depressive psychoses, hereditary and environmental factors in the causation of manic-depressive psychoses and dementia praecox, mental disease in relation to environment, sex, and age, the future of mental disease, what happens to patients during first year of hospital life, statistical study of patients treated with metrazol, mental disease in Peru, use and effect of alcohol, thirty years of alcoholic mental disease in New York State, and, finally, is the paroled patient a menace to the community? Each chapter comprises a complete study. A comprehensive bibliography is appended. Numerous tables and graphs strikingly emphasize the content.

No worker in social welfare, psychiatry, mental hygiene, sociology, public health, and related fields can afford to be without this most valuable

(Continued on page 2074)



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[Continued on page 2074]

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A New Course in Education

A new educational field suggested by Morton D. Kintusch, Director of the Albany Vacation Service, is arousing wide-spread interest in the travel industry and in Government circles.

A reply to the suggestion that colleges offer courses that would prepare graduates for specialized work, in travel, was made by the Supervisor of the Department of Interior, National Park Service, United States Travel Bureau. It stated that the idea expressed concerning the need for various college courses devoted to training men and women for the growing field of travel promotion strikes a very responsive chord. The Government has long entertained thoughts along a similar line.

The Supervisor, J. L. Bossemeyer, intimated that the Government's department travel publication would devote pages to advancing the idea. In general, the possibilities for studies for a "travel career" would cover courses in subjects such as public relations, travel sales methods, travel geography, foreign exchange, accounting, hotel, steamship, bus and airplane travel, travel clubs, literature, etc.

Opportunities for the graduates of such training would be sufficiently great to make this specialized schooling worth while for many youngsters who now view with dismay the overcrowded professional fields today. In addition few professions, if any, could be more interesting.

As family counsellors, as well as heads of families, this new educational prospect should be of interest to physicians. It may possibly open new avenues of suggestions for starting many youngsters on a good, healthy and happy career.

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CENTRAL VALLEY, Orange County, N. Y.

[Continued from page 2072]

contribution. It elucidates and points the way to a melioristic resolution of very real and knotty social problems which demand more public recognition, understanding, and financial support for study, prevention, and treatment

FREDERICK L PATRY

Approved Laboratory Technic. Clinical Pathological, Bacteriological, Mycological, Parasitological, Serological, Biochemical, and Histological By John A Kolmer, M D, and Fred Boerner, V M D Third edition Quarto of 921 pages, illustrated New York, D Appleton-Century Company, 1941 Cloth, \$8 00

The third edition of this book is recommended to the attention of laboratory workers and practitioners of medicine who either do their own laboratory work or desire to keep abreast of the new methods in this field

The book combines all the excellent features of the second edition and includes besides, in the form of an appendix, the newer laboratory procedures that have warranted general clinical use Such tests include Quick's method of determination of prothrombin, as well as the estimation of liver function by the hippuric acid test and a method for the determination of thio-cyanates in the blood, among others

This book has received the approval of the American Society of Clinical Pathologists as one of standard methods and should continue to enjoy the popularity that it has had in the past

THEO J CURPHEY

A Textbook of Clinical Neurology By J M Nielsen, M D Quarto of 672 pages, illustrated New York, Paul B Hoeber, Inc, 1941 Cloth, \$6 50

This volume is an effort to present a simplified "text of the subject during the time allotted to neurology in a general medical course" and "to form a systematized groundwork in clinical neurology" In this aim it succeeds only partially The subject matter is well organized but irregularly treated Undue emphasis is given to some subjects and too little to others The usual preliminary treatment of neuro-anatomy and physiology has, with good sense, been eliminated At the same time the subject matter reflects much personal experience with the result that it is often refreshing and holds interest The style is conversational and avoids the cut-and-dried style of the formal textbook This refreshing discursiveness would make for greater appeal and usefulness to the student and general practitioner were it not for the errors that have crept into the text and, it is hoped, will be deleted from future editions Numerous brief vignettes of special experience are interspersed through the book They are often disconcerting and occasionally confusing and, from brevity, throw little light on the problems Many of them could well have been eliminated The general practitioner and internist will find the book generally pleasant and useful reading The neurologist will find it meager for reference The volume is up to date Treatment is stressed throughout

The book is handsomely bound and is a credit to the excellent reputation of the publisher The type is unusually clear and readable The illus-

trations are excellent, well chosen, appropriate and well reproduced

I S FREIMAN

A Method of Anatomy Descriptive and Deductive By J C Boileau Grant, M D Second edition Quarto of 794 pages, illustrated Baltimore, Williams & Wilkins Company, 1941 Cloth, \$8 00

This second edition is essentially the same as the first, with the exception that several additional chapters have been added relating to topics not discussed previously These additional chapters deal with general descriptions of the body systems, with some more detailed discussions of certain of the skeletal construction There are approximately 140 more pages

In addition to the line drawings in the first edition, there are some more detailed reproductions included in this edition In general this book is a somewhat elaborated first edition It is not an anatomic reference book but offers an approach to the study of anatomy which makes this subject interesting and more comprehensible than does the average textbook

WALTER H SCHMITT

Medical Diagnosis and Symptomatology By Samuel A. Loewenberg, M D Fifth edition Quarto of 1,139 pages, illustrated Philadelphia, F A Davis Company, 1941 Cloth, \$12

The book is well arranged and written in simple style Short, inclusive paragraphs summarize important features New chapters including endocrinology, diseases of the blood making organs, diseases of the cardiovascular system, and the discussion on vitamins and vitamin deficiency diseases constitute an important addition to this revision The section on laboratory procedures is adequate for the routine office procedures The book is adequately illustrated with photographic and anatomic reproductions. It serves its purpose as an aid and a guide to the examining physician The section on physical diagnosis can be of value not only to the physician but to the student as well This book should become part of the library of every practicing physician

IRVING GREENFIELD

Accidental Injuries. The Medico-Legal Aspects of Workmen's Compensation and Public Liability By Henry H Kessler, M D Second edition Octavo of 803 pages, illustrated Philadelphia, Lea & Febiger, 1941 Cloth, \$10

This revised edition contains much information that is of importance to every physician who practices industrial medicine It is concerned with the physician's responsibilities in the interpretation of medicolegal problems The differentiation between occupational disease and occupational accident is clearly made The chapters on traumatic neuroses and rehabilitation have been rewritten Much careful attention has been given to the latter There is a short discussion of the medicolegal aspects of the various types of industrial diseases and industrial accidents Every physician on the industrial panel should be familiar with the contents of this valuable contribution.

IRVING GREENFIELD

[Continued on page 2076]

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"Getting Our Minds Off Our Troubles"

During the trying period of this emergency, it is essential that the American people be kept reminded that there is a need to continue normal habits of recreation and travel. So says the United States Travel Bureau.

Faced as we are with an extremely serious situation, the nerves and morale of the people will not be improved by a continuous grim and unrelentless attention to the problems and troubles that confront the nation as a whole. It is necessary, states the Government travel department, to "get our minds off our troubles" at intervals, and the prescription suggested is healthful rest or exercise in the out-of-doors, or by refreshing change of scene that comes through travel.

A secondary reason for maintaining these recreational and travel activities is for the important contribution that they make to the Nation's economic welfare. During the current year, according to conservative estimates, we will spend nearly seven billion dollars on travel in the United States. This is an important source of revenue for many types of business, and it is particularly valuable as a means of spreading to remote parts of the country a little of the prosperity that is now apparent in metropolitan areas but not likely to be felt otherwise in these places.

These thoughts have been emphasized constantly by the Chief of the United States Travel Bureau, Mr W Bruce Macnamee. The Bureau's slogan for 1941—"Travel Strengthens America"—has been widely used throughout the country

In spite of the fact, however, that the United States Travel Bureau is the Federal Government's official travel organization, it is not at present, a defense agency. Yet, those interested in maintaining travel and recreation through the emergency had been hoping for a statement from one of the key defense officials that would indicate that these officials hold the same views regarding the need for maintaining travel that the Government's bureau holds. The longed-for statement was made last month by Federal Security Administrator Paul V McNutt, who also holds the post of Defense Recreation Coordinator. In a signed article in the August issue of the *Official Bulletin* of the United States Travel Bureau, he said, in part

"When the national defense program was initiated the President and the Nation as a whole recognized that safeguarding the Nation is not wholly a matter of guns, bombers, tanks and warships. In fact, the most significant aspect of our defense efforts may well prove to be the fact that the national state of health, welfare and recreation, as integral parts of the defense program, has been accepted with prompt unanimity. Travel, a paramount factor in recreational activity, is important to national health which is vital to our manpower, defense production and morale. Therefore, the maintenance of travel facilities is doubly urgent at this time.

"The pleasure and relaxation of travel will do a great deal toward bringing about a national unity which is essential to our defense program. Furthermore, we are

(Continued on page 2079)

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SEE PAGE 2081

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Physician in Charge

(Continued from p 2074)

A Handbook for Dissectors By J C Boileau Grant, and H A Cates Duodecimo of 239 pages Baltimore, Williams & Wilkins Company, 1940 Cloth, \$2 50

This dissecting manual is intended to be used in conjunction with Grant's *Method of Anatomy*. It is clearly and concisely written and describes dissection approaches to certain parts of the body which are somewhat of a departure from the methods ordinarily used

WALTER H SCHMITT

A Manual of Allergy for General Practitioners By Milton B Cohen, M D Duodecimo of 156 pages New York, Paul B Hoeber, Inc., 1941 Cloth, \$2 00

This small-sized book deals in a practical and simple manner with the broader aspects of allergy and with many of the allergic diseases. It has been written primarily for the general practitioner as an introductory guide prior to his reading of the monographs and textbooks on the subject. The author presents only his own point of view and avoids discussion of the literature and controversial questions.

In addition to chapters on diagnosis, treatment of hay fever, asthma, etc., one finds excellent material on the "life history of an allergic patient" and a good discussion of the changes in growth and development of allergic children. A review of important allergens that may be encountered is included. Urticaria, angioneurotic edema, gastrointestinal allergy, and migraine are only briefly mentioned.

MAX HARTEN

The Medical Aspect of Boxing By Ernst Jokl, M D Octavo of 251 pages, illustrated Johannesburg, South Africa, the Author, Witwatersrand Technical College, Eloff Street, 1941 Cloth

The author has gathered together and analyzed clinical and research evidence demonstrating the dangerous effects of blows received during boxing on the nervous system and also in a lesser degree on the heart.

Delayed sequelae of various types of "knock-out" are also analyzed. Careful researches of reported cases in the literature and the addition of many personal experiences of the writer yield a large number of severe injuries ranging from paralysis of the serratus anterior and quadriceps muscles through permanent injury to the facial nerves, rupture of the pectoralis major, arteriovenous aneurysm, hemothorax, fractures of the mandible, concussion of the brain and lung, and an exceedingly impressive number of fatalities from blows in the ring.

Regarding its value as an exercise, he points out that any benefits coming from boxing can be equally well achieved through other sports that do not constantly endanger health and the efficiency of the central nervous system.

The author presents considerable evidence of the brutalizing influence of this sport not only upon the boxers themselves but upon the spectators. He makes a strong plea for the abolition of boxing among members of the air corps claiming that delayed results of intracranial injuries sustained during boxing have produced many

fatal accidents during subsequent flights. In all, through the tremendous amount of material he has gathered together and comprehensively presented, the reader is given the impression that boxing is anything but a "manly art of self-defense," that as a sport it is markedly inferior to many others, that it has inherent in it many dangers that other sports lack, that it is brutalizing for participant and spectator alike, and that it is an undesirable form of physical education.

HARRY KOSTER

Oral Pathology A Histological, Roentgenological, and Clinical Study of the Diseases of the Teeth, Jaws, and Mouth By Kurt H Thoma, D M D Quarto of 1,306 pages, illustrated St Louis, C V Mosby Company, 1941 Cloth, \$15

An adequate review of this well-illustrated book of 1,306 pages in the available space is impossible not alone because of size but also because of the comprehensive scope of the text. It ably covers the fields of heredity and endocrinology in relation to the oral cavity, modifications and maldevelopments of the face and jaws, injuries and diseases of the teeth, of the periodontal membrane of the jaws and soft tissues, and of the salivary and mucous glands, and all types of tumors. However, particular emphasis might be placed upon its value to dentists and physicians alike both as an office reference volume and for the thoughtful study and correlation of the joint problems of both professions. In this connection the recent action of the Association of Deans of Medical Schools in assuming direction, at least in part, of the education of the intern has given impetus to the correlation and cooperation of the specialties of medicine. Their requests for more clinicopathologic conferences, as a specific example, have made necessary increased library facilities in the modern hospitals. At present there is a woeful lack of knowledge, cooperation, and coordination of dental information as related to the other specialties of medicine. This book in the hospital library and frequently used in the pathologic conferences would go far to correct this deficiency.

JOSEPH J STAHL

Techniques of Conception Control By Robert L Dickinson, M D, and Woodbridge E Morris, M D Quarto of 56 pages, illustrated Baltimore, Williams & Wilkins Company, 1941 Cloth, \$0 50

Whether the physician believes in the control of conception or not is beside the point, since it is certain that a large proportion of the public do. Therefore, the physician should be equipped to give advice and offer technics for control of conception or be in a position to refer such patients to reliable individuals or institutions for advice. In either instance it behooves the modern physician to be "up" on his knowledge of family planning.

This brochure by Dickinson and Morris does just this and does it unusually well. The illustrations are second to none, and the publishers are to be congratulated for their well-nigh perfect reproduction of them. We can, without reser-

(Continued on page 2078)

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(Continued from page 2077)

committed to the sound policy that leisure must complement labor. That commitment entails an obligation to see that hours off duty can also be well spent.

"More than half of the population of the United States—over 60 million people—travel for pleasure and recreation each year. The national emergency which has been accompanied by increased wage scales and overtime pay, has accelerated their travel pursuits. In a vast wave they spread over the Nation, and they come in contact with new people, new conditions, new scenes which permanently influence their thinking and their activities on social and economic problems affecting the people as a whole. They spend large sums of money each year. In 1940, their total expenditure was over \$6,000,000,000. That money provides funds for defense purposes.

"Summing up, their visits and their expenditures in turn profoundly effect the areas to which and through which they travel. Thus, national unity is engendered.

"Travel—the common activity of a majority of the people—is one of the major sources from which the Nation obtains much of its strength and creativeness."

This is a significant statement by a man empowered by the President to coordinate the Nation's health, welfare and recreation during the emergency and it is important to every one dealing with travel. Here we may include the medical profession, too, for travel is still prescribed for many persons in ill health.

Perhaps many have hesitated to plan any extensive traveling during 1942—for such the reassuring remarks made by Mr. McNutt may prove beneficial. There is little prospect that there will be any curtailment of travel during the coming months. If anything, it should increase greatly with thousands of families probably planning now to spend vacations on trips to see their boys in the various camps throughout the country.

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[Continued from page 2076]

vation, recommend this brochure to practitioner, teacher, and student

HARVEY B MATTHEWS

A History of Medicine By Arturo Castiglioni, M.D. Translated from the Italian and edited by E B Krumbhaar, M.D. Octavo of 1,013 pages, illustrated New York, Alfred A Knopf, 1941 Cloth, \$8 50

The first edition of this excellent work was published at Milan in 1927, a French translation of the book appeared in Paris in 1931, and now we are presented with an English version. The present edition represents virtually a new work, having been amplified and brought up to date by Professor Castiglioni and Dr E B Krumbhaar, who translated and edited the book. The book is extremely well printed, serviceably bound in handsome blue cloth, and illustrated with 443 extremely well-chosen pictures.

The text of the book is no less excellent than the dress in which it appears. Castiglioni's *History of Medicine* is at present the best single-volume history of medicine available in the English language. As the author of some twelve volumes on the history of medicine and as a frequent contributor to the journals devoted to medical history, Professor Castiglioni's qualifications for writing such a history of medicine are unquestionably excellent. Although the book is exceedingly exhaustive, the author's happy felicity of style makes it a work that can be read continuously from cover to cover.

The scope of the book may be gathered from the titles of some of its twenty chapters: Medical Thought in Its Historical Evolution, The Origin of Medicine in Prehistory and in Primitive Peoples, Mesopotamian Medicine, Magic and Priestly Medicine, Old Egyptian Medicine, Priestly Medicine, Origins of the Philosophic Concept, The Medicine of the People of Israel, Theurgic Medicine, Canonical Codifications of Sanitary Laws, The Medicine of Ancient Persia and India, Far Eastern Medicine, The Medicine of Ancient Greece, The Golden Age of Greek Medicine, Roman Medicine, The Decadence of Medical Science, Arabian Medicine, Medicine in the Later Middle Ages, The Renaissance, The Seventeenth Century, The Eighteenth Century, The Nineteenth Century, and The Twentieth Century.

The book is supplied with a very good bibliography of 44 pages, an index of names, an index of subjects, and a table illustrating the rise of medical faculties. As a work that may be read with pleasure and also used with equal facility as a book of reference, it is highly recommended.

GEORGE ROSEN

Arthritis and Allied Conditions. By Bernard I Comroe, M.D. Second edition. Octavo of 878 pages, illustrated Philadelphia, Lea & Febiger, 1941 Cloth, \$9 00

This second edition of Dr Comroe's work on arthritis, appearing as it does so soon after the first edition, attests to its reception by the medical profession. The book has been largely rewritten but the general plan is unchanged. It is larger by more than 100 pages. The completeness almost disturbs one, as even the prevailing hotel and treatment prices at the various

spas are given. If it were not for the wonderful analysis and therapy of the text, it might suggest a Baedeker on arthritis. This book should be of value to every physician.

JAQUES C RUSHMORE

Chemical Warfare By Curt Wachtel. Octavo of 312 pages. Brooklyn, Chemical Publishing Company, 1941 Cloth, \$4 00

The author is an internationally known chemist on industrial chemical poisons and chemical warfare agents. Most of the authors on chemical warfare agents are military chemists and almost without exception leave the impression that no new war gas combinations are to be expected. This volume corrects that impression that has all along been difficult for the nonmilitary physician interested in civil defense to accept, since it is well known that progress is being made in industrial and forestry chemical poisons.

The technical and pathologic descriptions are somewhat condensed, but clarity has not been sacrificed. The psychologic, historical, and economic aspects of chemical warfare agents are more inclusive than the average treatise and make interesting reading.

This volume is timely and will be a valuable aid to those assigned to duty with the Chemical Warfare Services.

CARL W LUPO

The Family Doctor's Notebook. By I J Wolf, M.D. Octavo of 315 pages. New York, Fortuny's, 1940 Cloth, \$2 00

Dr Wolf writes briefly about his life and devotes the greater part of his book to sections on physician and patient, topics of the day, and *quo vadis?* The latter contains a chapter on the patient and religion. The style is rambling and the literary merit of the volume is scant. It will probably have a small audience but the comments of the author on medical problems are sensible and often interesting.

MILTON PLOTZ

Physical Medicine. The Employment of Physical Agents for Diagnosis and Therapy. By Frank H Krusen, M.D. Octavo of 846 pages, illustrated Philadelphia, W B Saunders Company, 1941 Cloth, \$10

The scope of physical therapy is now such that it is difficult to include a comprehensive coverage of the subject in a single volume. Dr Krusen has attempted to do this and has accomplished his purpose in a most creditable manner. He has also achieved an unusual degree of clarity throughout the text and has avoided the more involved aspects of advanced physics. A feature of particular interest is attention to simplified apparatus that makes physical treatment more readily available to the average practitioner. Considerable thought is given to the practical application of the methods under discussion, with adequate detail of technique, indications, and contraindications. A conservative view may be noted throughout the text, which emphasizes the obvious sincerity of the writer. The book is well written, clearly printed, and profusely illustrated and may well be considered an outstanding contribution to the literature.

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(Continued from page 2077)

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portant to every one dealing with travel. Here we may
include the medical profession, too, for travel is still
prescribed for many persons in ill health.

Perhaps many have hesitated to plan any extensive
traveling during 1942—for such the reassuring remarks
made by Mr. McNutt may prove beneficial. There is
little prospect that there will be any curtailment of
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THE NEW WAR'S NEWEST MEDICAL PROBLEM

Practically every war, since gun powder replaced hand-propelled projectiles, has presented the medical profession with some new type of case. The present conflict is no exception.

In World War I there were gassed cases, shell-shock, trench fever and some others. Among civilian non-combatants, influenza struck to overtax already heavily burdened physicians on the home front and surgery found its problem in reconstructing disfigured casualties.

World War II, has not as yet presented such an array of new medical problems, but it has created a case that no conflict in the past was base enough to produce—the child victim of bombings.

In England, the greatest sufferer so far of air raids, injuries to children have been considerable but even

larger numbers have been "bomb-shocked" casualties. Here then, arose an entirely new problem for medical science to meet. In addition to the customary difficulty of treating infants and the youngest children, the medical profession of England had to devise methods of treatment similar to those used in adult nervous cases, but modified to a child's physical and mental capacity.

"Bomb-shock" made its first appearance among London children during the first air-raids last fall. The usual symptoms were loss of normal equilibrium, inability to walk entirely, extreme nervous tension and uncontrollable sobbing when air-raid signals sounded. Other cities severely bombarded had similar cases among children under five years of age.

Medical veterans of the first World War have de-

(Continued on page 2081)

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Editorial

Salute to Norway

One ponders at times the fate of the medical profession in the occupied countries of Europe. Out of the dark agony that seems to envelop France, Belgium, Holland, Norway, Poland, and the rest comes no word, no picture of what is happening to the members of the medical profession or any inkling of how they are meeting the ordeal of their captivity, their sojourn in the house of bondage.

The newspaper *PM* for September 25, 1941, carried a special article by Albert Deutsch¹ which permits a brief glimpse of the Norwegian medical profession under circumstances of great difficulty. From this we quote:

Several years ago the eminent Norwegian psychiatrist, Dr. Johann Scharfenberg, wrote a scholarly paper on the personality of Adolf Hitler, concluding that the Fuehrer was a madman. Soon after the Nazis occupied Norway, Gestapo agents entered Dr. Scharfenberg's home and asked him point-blank if he still held the same opinion.

"My opinion has changed in one respect," Dr. Scharfenberg replied. "When I wrote my article I believed Hitler was insane. Now I know it."

"Don't you realize your remark is highly dangerous?" asked the Gestapo men.

"Of course," he replied. "But I am an old man, you see. My work is about finished. Now you can do what you like with me. It doesn't matter."

The Nazis spluttered that Dr. Scharfen-

berg would have to report at the local Quisling police station each day.

"Too much trouble," said the grand old man. "Here's my phone number. You can call me daily if you wish."

They threw Dr. Scharfenberg into prison. Every day the good people of Oslo sent many baskets of flowers and food to his cell. It all got too embarrassing for the Quislings, who released the old psychiatrist after six weeks.

PM's staff writer says that he obtained his information by piecing together reports from abroad and from firsthand accounts from recently arrived medical refugees from Norway.

The Dikemark Insane Asylum, near Oslo, is the largest institution of its kind in Norway. Last spring its medical director, Dr. Rolv Gjessing, received a notice from the new Nazi surgeon general, Dr. Ostrem, ordering him to promote a certain orderly to superintendent of male nurses. Dr. Gjessing refused, knowing that the man's only qualification for the job was being a loyal Nazi. After repeated threats failed, the Quisling administration dismissed and imprisoned Dr. Gjessing.

This outrage was followed by one of the most remarkable acts in medical history. The heads of all medical institutions in Oslo signed a manifesto to the Quisling régime declaring their opposition to appointments made on the basis of political allegiance, demanding the immediate release and reinstatement of their colleague, and threatening a strike of the entire medical body of Oslo—more than 2,000 strong—unless their demands were granted.

The Nazis threatened to throw every

¹ Norwegian Doctors "Refuse to Swallow Nazi Medicine." Excerpts from the newspaper *PM*, Inc. Reprinted by special permission.

signer into a concentration camp, but the medical ranks held and in a few weeks Dr Gjessing was reinstated as director of Dikemark

The Norwegian medical profession has repeatedly joined with organized labor and other groups in bold protests against Nazi tyranny. One such protest, addressed to the Nazi Reichscommissar, Josef Terboven, denounced the brutality of Storm Troopers and mass imprisonments of Norwegian democrats. It was signed by 43 organizations, representing all sections of the people, including the Norwegian Medical Association and the national societies of nurses, dentists, and pharmacists.

The Nazis and their Quisling henchmen have failed time and again to coordinate the Norwegian medical profession. At first they tried to bribe their way into control of the Norwegian Medical Association. This attempt soon proved unsuccessful, and the Quislings then set up, in opposition to the N M A, a national guild that lumped together physicians with natural healers and other quacks of the Julius Streicher type.

Only 15 or 20 doctors entered the Nazi medical guild. When the names of these medical Quislings were made public, most found themselves without patients and several were compelled to attach placards to their shingles repudiating any connection with the new guild.

In a short time the Nazi guild fell apart and the Quisling régime then took over the Norwegian Medical Association by decree.

The existing head, Dr Jorgen J Berner, was kicked out and replaced by one Dr Wagner, a Nazi sympathizer.

So now the Norwegian Medical Association, along with nearly all other labor and professional groups, is in the hands of the Nazis. But it is an empty shell, a virtually memberless society, over which the mediocre Dr Wagner presides. The reputable physicians of Norway have suddenly found it undesirable to continue active membership.

If but a part of this report were subsequently confirmed, *PM* has done the medical profession everywhere a commendable service by publishing it. Doubtless, were the facts obtainable, a similar story could be written of the profession in other conquered countries.

We are particularly interested in the repeated Nazi attempts and their failure to "coordinate" the Norwegian doctors. If the New Zealand confreres are of similar rugged material, the plan of the Ministry of Health of that island to "coordinate" the profession into its pet scheme of free doctor care should not fare too well in practice.

We assume that in any real test the American profession of medicine would be just as insusceptible of coercion as the Norwegian profession, which we salute.

History of the Directory

For the first time, in the current 1941-1942 issue of the *Medical Directory of New York, New Jersey and Connecticut* will be found a condensed history of the *Directory* of the Medical Society of the State of New York.

Published first in 1899, the current volume is the forty-first to appear. The total number of registered physicians in the three states when the directory was first published was 11,625. In the 1941-1942 edition, the total is 32,609. In 1899 New York had 9,199, New Jersey, 1,481, and Connecticut, 945. Today New York has 24,777, New Jersey, 5,332, and Connecticut, 2,500.

In the 1900 edition of this *Directory*

the statement appears on the title page, "Published by the New York State Medical Association." The same statement appears thereafter until, in the eighth volume, 1906, it is changed to "Published by the Medical Society of the State of New York."

For those not familiar with medical society history in New York State, certain events deserve recital here. The Medical Society of the State of New York was organized under an act of incorporation in the year 1807. In 1834, owing to a schism within the ranks of its members, a second state-wide society was formed under the name of New York State Medical Association. Both

organizations continued to function with overlapping membership until, by legal agreement, they were amalgamated in the year 1905. By this agreement the New York State Medical Association went out of existence, transferring its assets and good will to the Medical Society of the State of New York. Since that time the *Medical Directory of New York, New Jersey and Connecticut* has been published by the Medical Society of the State of New York.

This year, for the first time, a Session on the History of Medicine was held at the

Annual Meeting. Reference to the papers read at that time shows the growing interest of New York physicians in this topic. Much history is even now in the making in the state, and it is to be hoped that medical men will take the large view that current archives and Americana are just as valuable as the old.

The editors of the *Directory* have shown commendable imagination and "resource and sagacity," by publishing its history and, by printing the comparative data, have painted a vivid picture of the growth of medicine in the trinity of states.

Warning

The increasing use of drugs of the sulfonamide group has called attention to certain reactions of a febrile and psychosomatic character. It is well that attention be paid to the real source of these reactions in order that they may be attributed to their proper cause and appropriate precautions be exercised.

We have all been taught that when an infection in any part of the body is followed by the development of chills and fever, the chances are that the infecting organism has gotten into the blood stream. In other words, a septicemia has taken place, and this is usually the result of thrombophlebitis. The sulfonamide drugs are now coming into more general use and are being given more frequently and in larger doses than when they were first administered. Certain toxic symptoms of these drugs are widely known. These include leukopenia, a skin rash, and some rise in fever. However, it is not generally known that chills and fever and a severely toxic state may occur in certain individuals who are hypersensitive to any of these sulfonamide drugs. There is an increasing number of cases in which chills and fever, even exceeding 106 F., are due to these drugs. Prompt cessation of administration of the drugs is usually followed by prompt relief. However, if the source of the toxicity is not recognized promptly, the patient may go

on, even to death, and the attending physician remain under the misapprehension that the patient had an overwhelming infection. More and more, physicians are prescribing sulfonamide drugs in the early stages of infection. Under these circumstances, when chills and fever set in, it is vitally important to judge critically the source of the chills and fever. Blood stream infection can be proved by positive blood cultures. Leukopenia, a relatively low leukocytosis, jaundice, anemia, cyanosis, or mental symptoms may indicate drug hypersensitivity. A skin rash resulting from drug reaction differs from that of septicopyemia. The cases are multiplying in which there actually was a blood stream infection with chills and fever—in which the drug has done its work, has eliminated the infection, and then has continued to produce toxic symptoms. The obvious conclusion is to check the blood cultures repeatedly as the drug is administered in these cases and, in instances of doubt, to withhold the drug for twenty-four to forty-eight hours.

It is one thing to write a list of toxic symptoms arising from the use of these drugs. It is quite another, and a much more important thing, to alter our fundamental habits of thinking so that we inquire specifically in a patient who has an infection in any part of the body and then

develops chills and fever whether any sulfonamide drugs have been administered. If they have been given, we must consider the likelihood that the chills and fever may be due to a chemical toxemia rather than to bacterial toxemia.

We are indebted to a correspondent who has called our attention to the necessity for a proper evaluation of the causes of febrile reactions in cases of infections treated with drugs of this group [See page 2156 for Conference on Chemotherapy]

What Price Public Safety?

Now to the disgraceful record must be added one more instance of disregard for the public safety. On April 18, 1941, as we reported,¹ occurred the strike of maids, orderlies, and employees in the nurses' home, the engineering division, and the garages of the West Penn Hospital. A serious situation was created affecting the lives and health of all the patients.

In Kansas City, on September 17, a dramatic power strike blacked out a city of 400,000 inhabitants, plunging its hospitals in darkness for the better part of a whole night and paralyzing its utilities.

This seems to us to be recklessness and irresponsibility of an order that no cause can justify and that must, in the end, utterly alienate public sympathy from labor's just grounds for complaint. There is something peculiarly callous and cynical in actions that subject the sick, the helpless, and the maimed to the additional hazard of fright, terror, darkness, and

violence. It does not, somehow, seem to fit into the picture of the "social gains" of which we hear now and again and which we are given to understand must be protected at whatever cost.

The price seems to us to be too high, as, we are convinced, it will also appear to be to the great majority of American labor which is even now here and there rising in open revolt against the callous tyranny of a rascally leadership. We cannot believe that labor itself will permit, even if civil authorities seem to condone, such irresponsible acts as strikes against the public safety by a small section of its membership. We believe in the good common sense of the rank and file of American labor, who do not have to have us point out that everyone needs tranquil and secure hospitals. We trust that American labor, given the opportunity really to control its actions, will concede and enforce the principle that there is no right to strike against the public safety, any time, anywhere.

¹ Strikes in Hospitals, New York State J Med. 41: 1618 (Aug. 15) 1941.

Preventing Postoperative Complications

One of the dread postoperative complications is embolus. Patients who have done perfectly well, will suddenly, upon getting out of bed, develop a fatal postoperative embolus. This has led many surgeons to favor instituting activity as soon as possible.

Leithauser and Bergo¹ used early rising and ambulatory activity after operation as a means of preventing complications in 383 appendectomies consecutively performed. On the first postoperative day the patient was assisted to the sitting position on the edge of the bed and then he was made to stand beside the bed for deep breathing exercises. He was

made to walk about the room and made to sit in the chair for a few moments before returning to bed. In each position he was instructed to inhale deeply and cough. The average period of postoperative confinement to bed was from one to one and a half days. The mean hospital stay was $2\frac{3}{10}$ days.

Upon leaving the hospital the patients were ambulatory and returned for observation on the sixth day. Those engaged in light work were permitted to return to their offices on the eighth day and those doing manual labor on the fourteenth day. The authors have been impressed by the freedom from complications and the rapid recovery following this type of management.

¹ Leithauser, D. J., and Bergo, H. L. Arch. Surg. 42: 1036 (June) 1941.

RECENT DEVELOPMENTS IN THE FIELD OF LABORATORY MEDICINE

RALPH G. STILLMAN, M D, New York City

A DISCUSSION of recent developments in any field is fascinating because it stirs our imagination and arouses our hopes, but it may be dangerous because our tendency is to exaggerate the importance of new things and to adopt them before they have been evaluated properly. However, it is our duty to apply them whenever possible, to review the results critically, and thus help to shorten the time necessary for accumulating the information that will fix their true value. In this presentation there will be found mention of some procedures that are almost wholly untried as well as some whose position has been fairly well established and, in addition, reference to a few methods that are not at all new but appear to deserve some attention.

The influence of the diet upon carbohydrate tolerance has long been known, but it appears to have been largely forgotten by the clinician or perhaps has not been called to his attention because the reports have appeared in journals not ordinarily seen by him. Rather recently, however, several articles have appeared on the subject and deserve particular emphasis.

Conn¹ has shown clearly that normal individuals that had been on a preparatory diet containing adequate carbohydrate for three days gave a normal response to the usual glucose tolerance test, but when these same persons were restricted for five days to a diet containing only 20 Gm of carbohydrate daily they yielded a response to the glucose tolerance test that was regarded as typical of diabetes mellitus.

Andrews and Muether² studied patients suffering with typical rheumatoid arthritis and found that their tolerance to carbohydrate was lowered after a low carbohydrate, high fat diet and was raised by a high carbohydrate, low fat period. Langner and Fies³ studied normal individuals using the Exton-Rose one-hour, two-dose tolerance test and short diet periods, and they obtained results that were practically identical with those of Conn in that typically diabetic curves were obtained following even a short period of low carbohydrate diet.

It has been our experience that many clinicians ask for glucose tolerance tests wholly without reference to the previous diet of the patient, and it must often happen that a patient in whom a glucosuria has been discovered will come to a glucose tolerance test after a period of restriction of his carbohydrate intake. Under these circumstances the danger of incorrect diagnosis is greatly increased and astonishing "cures" of diabetes may be encountered. Conn suggests that the glucose tolerance test should be preceded by a period of at least three days during which there should be adequate carbohydrate intake—for example, a diet containing 300 Gm carbohydrate, 80 Gm fat, and 2,800 calories daily. If this precaution is observed, our sugar tolerance tests will be more consistent and reliable.

There is nothing new in hemoglobin determinations except that new forms of apparatus are constantly being introduced for this purpose—notably the photoelectric colorimeter. It is still unfortunately the case that hardly any of the more common laboratory procedures is generally so poorly carried out. This is true not only of determinations made in the doctor's office, sometimes with inaccurate apparatus but more often with hemoglobinometers originally accurate but made inaccurate by neglect, but also of those made in institutions where we would expect technical procedures to be carried out surpassingly well. It must be borne in mind that from the taking of the blood to the final reading the technic presents pitfalls that must be avoided and that many of these are not appreciated by the clinician. One of the worst features, however, is the fact that it is rarely possible to read a report of a hemoglobin estimation and know what the examiner meant by it. Different technics and values have been introduced for this procedure to such an extent that 100 per cent hemoglobin may mean anywhere from 13.8 to 18.0 Gm. per hundred cubic centimeters of blood. When hemoglobin is reported only in terms of percentage without specification of the standard used, the reader often cannot tell whether the patient is anemic or how to calculate the color index. The real reason for this confusion appears to be that most of the authors of methods have attempted to establish 100 per cent as the average hemoglobin

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 30, 1941.
Assistant professor of medicine (clinical pathology), Cornell University Medical College and clinical pathologist, the New York Hospital.

value of the so-called normal male adult and have ignored the wide variations that are due to age and sex. These difficulties will be largely resolved if we will adopt the practice of reporting hemoglobin only in terms of grams per hundred cubic centimeters of blood. Such a report cannot be misunderstood and can be used in the interpretation of the blood examination under all circumstances. Some clinicians will protest because it upsets their previous habit but they should soon become able to think in terms of grams rather than percentage.

When it is desired to have a figure for 100 per cent hemoglobin, as is the case when calculating the color index and certain other indices, it is necessary to rely upon reported observations. When one analyzes the figures obtained in a number of series by different investigators in various parts of the country for "normal" persons of both sexes and all ages, it is found that for each 5,000,000 red blood cells per cubic millimeter there are nearly 14.5 Gm. of hemoglobin per hundred cubic centimeters of blood. It is to be remembered that this does not represent the mythical "normal," for women will average about 13.8 Gm. per hundred cubic centimeters with about 4,700,000 red blood cells and many men will show 16 Gm. of hemoglobin with 5,500,000 red blood cells. For the purposes of certain calculations, therefore, 100 per cent hemoglobin may be regarded as 14.5 Gm. per hundred cubic centimeters. This figure applies to both sexes and all ages. Once the confusion that results from making reports in terms of percentage of a nonexistent normal is recognized, all will wish to record their results in terms of grams per hundred cubic centimeters of blood.

One of the most intriguing of recent suggestions in the field of laboratory medicine has been contributed by Kahn, the author of Kahn's serologic test for syphilis, in what he calls the verification test.⁴ In spite of the undoubted value of the usual Kahn procedure in the diagnosis of syphilis, it is not an unusual experience to have this test yield doubtful or more or less strongly positive results in cases in which it has not been possible to detect any clinical or historical evidence of this infection. Kahn reminds us that the blood of many animals—rabbits, horses, dogs, etc.—yield positive serologic tests for syphilis. He investigated this phenomenon and found that when he carried out these tests at 1 C the results were positive, while if they were carried out at 37 C the results were negative. On the contrary, with the blood of patients suffering with

syphilis the test was positive at 37 C and weaker or negative at 1 C. Kahn therefore concluded that the reaction that is positive at 1 C and negative at 37 C is a general biologic reaction that is present in a certain number of animals and humans and has no significance in the diagnosis of syphilis. In a respectable series of cases his results support his theory, and it would appear that in the verification test the clinician and the serologist have at last been offered a means of clearing away at least some of the difficulties created by doubtful and false positive results with serologic tests.

At the present moment too few cases have been studied to enable us to form a considered opinion of this procedure. At the New York Hospital, in a small series, some carried out by Kahn and some by the hospital laboratory, the results have not been entirely consistent. However, several serologists are investigating the test, and we can expect before long to have sufficient evidence to evaluate it accurately. Moore has objected that in a test that is admittedly nonspecific one can scarcely hope for great improvement to result from a merely technical refinement. Nevertheless, if Kahn's claims are substantiated, an important contribution to the serology of syphilis will have been made.

Of the many new serologic tests for syphilis which are constantly being introduced, the one introduced by Mazzini⁵ appears to have attracted the most favorable attention. The technic of this test is practically the same as that of the well-known Kline slide test, but a different antigen devised by Mazzini is employed. More than 14,000 of these tests have been carried out at the New York Hospital during the past eighteen months, and the results are distinctly promising. Mazzini's procedure yields fewer doubtful and significantly more positive results when compared with the Kline and a complement-fixation test, and the investigation of the clinical accuracy of the findings which is now going on has been favorable. Reports by others seem to indicate that the Mazzini test is superior in both sensitivity and specificity to many of the tests in general use and has the additional advantages of speed and simplicity.

Attempts continue to be made to increase the sensitivity and the rapidity of the methods used to demonstrate the presence of tubercle bacilli. It is said that Meunier in 1898 first suggested the examination of the gastric contents of infants for tubercle bacilli, but it was not until 1931 that the method was applied to

adults. Once so applied it met with immediate success, and there have been many reports of series of examinations which demonstrate the superiority of this method. For instance, Stadnichenko, Cohen, and Sweany⁶ in a group of 1,000 patients, of whom 176 were regarded as nontuberculous, found 307 in whom the gastric contents were positive and the sputum negative. It appears now to be generally agreed that no person should be regarded as having a negative sputum until the gastric contents have been concentrated and examined by inoculation into both guinea pig and culture medium. At the New York Hospital nearly 40 per cent of the specimens submitted for these procedures are gastric washings.

If one adopts this measure, certain precautions should be observed. The cleansing of the tube used in the removal of the contents must be undertaken with great care to avoid the contamination of subsequent specimens⁷ either with tubercle bacilli retained on the inner surface of the tube or other acid-fast bacilli from the distilled water employed, the material should be obtained the first thing in the morning before the patient leaves his bed or eats any food and preferably after exclusion of milk, butter, and cheese from the diet for twenty-four hours, and lavage should be performed with a limited amount of sterile distilled water, the material obtained should be immediately treated or refrigerated, and both culture medium and animals should be inoculated.

At first it was thought that the tubercle bacilli gained access to the stomach because the patient swallowed them, and this is probably the most frequent mechanism. Ulmar and Ornstein,⁸ however, showed by x-ray studies that even in the absence of cough it is possible for bronchial secretion to reach the esophagus and thus be collected in the stomach and thought that this is due to peristaltic action of the trachea and the bronchial tree. It seems more likely, however, that it is due to the action of the ciliated epithelium. This action occurs rather more effectively when the patient is lying down.

Two of the most important advances in recent years have been the discovery of vitamin K and its action in preventing hemorrhage through stimulation of the production of prothrombin. This work has been greatly facilitated by the introduction by Quick and by Warner, Brinkhous, and Smith of methods for the determination of the relative amount of prothrombin in the blood. The latter method

is much more complicated but is generally accepted as being more reliable than those of Quick, though the Quick methods have the advantage of being more rapid and of requiring less special apparatus. It has been quite definitely shown that prothrombin is produced in the liver, that it is constantly being used up or destroyed, especially in the lung, that it is not stored in the body in appreciable amounts, and that bile salts are necessary for the satisfactory absorption of vitamin K from the intestine. It is also now known that the hemorrhages occurring in hemorrhagic diseases of the newborn and in obstructive jaundice are due to prothrombin deficiency and, if the liver is not too seriously affected, this deficiency can be corrected by the administration of synthetic vitamin K (2 methyl-1,4-naphthoquinone) and bile salts by mouth or of the former alone by intramuscular injection.

It also appears to be the case that if the prothrombin content of the blood fails to show a satisfactory increase after the administration of this synthetic vitamin it may be assumed that there is a deficiency in the function of the liver, and the degree by which the prothrombin fails to return to normal is a rough measurement of the extent of the liver damage. Just how reliable this procedure is as a measure of liver function is now the subject of study in a number of laboratories, and there have recently been published⁹ some observations that appear to contradict this thesis. It is quite possible that like the other tests that have been proposed for studying liver function this procedure will be found to be subject to a number of qualifications and limitations.

The introduction of the falling drop method for the determination of the specific gravity of the serum¹⁰ and the use of this figure in estimating the protein content and, thus, the concentration of the blood have greatly facilitated investigation in this field. It has long been appreciated that the colorimetric method of Greenberg is subject to a fairly large error and that the Kjeldahl method, while highly accurate, is more time-consuming and elaborate than is desirable for a clinical method. The specific gravity method appears to be sufficiently accurate for all clinical purposes provided one takes care not to be misled by bloods containing an unusually large amount of glucose or cholesterol. The determination of serum proteins is recognized as an important procedure not only in the demonstration of the edema level but also in heralding the approach of surgical shock and, more recently, in detecting a low or falling serum protein, espe-

cially in patients suffering from carcinoma of the gastrointestinal tract. It has been found that the low serum protein in these diseases is an important factor in determining an unfavorable outcome, especially after operative procedures, and, if this can be overcome by the transfusion of concentrated plasma, the mortality rate can be lowered significantly. Determinations can be made in a minimum of time with this method, and it has been quite largely adopted as a standard procedure.

Determinations of phosphatase in the blood have been carried out for a number of years, and the significance of the findings has been fairly well settled. Recently, it has been shown that there are many phosphatases in the body, among them one found in the substance and the secretion of the prostate which is most active in an acid medium (pH 4.9). Gutman and his coworkers¹¹ have shown that the blood content of such an "acid" phosphatase is usually increased in patients suffering with carcinoma of the prostate when metastases have developed in the bones. Other conditions that show an increase in the acid phosphatase are hyperparathyroidism, well-advanced Paget's disease of the bones and, rarely, bone metastases from tumors in other locations. These authors present a large series of cases in support of their theory, and it seems likely that there is here a method for detecting the development and spread of bone metastases from prostatic carcinoma.

The creatine tolerance test is not a recent appearance in laboratory medicine, but it seems to be not so well known or so frequently used as it deserves to be. Its principal application is in disturbances of the thyroid gland in which, at times, it proves to be more reliable than the far more popular determination of the basal metabolic rate, which is sometimes not carried out in an accurate manner. There is a diminished tolerance to ingested creatine in hyperthyroidism, and this is readily restored to normal by the administration of iodine. A similar abnormality occurring in progressive muscular dystrophy is not abolished by iodine. In myxedema there is excellent tolerance for ingested creatine which may be lowered, at least temporarily, by the administration of thyroid. This procedure is not technically exceedingly difficult, but the laboratory should have some experience with it and all details in the directions should be strictly adhered to.

The introduction of sulfanilamide and its numerous derivatives naturally required that

a method be devised for the determination of the concentration of these substances in the blood, other body fluids, and the urine. Bratton and Marshall's method¹² has proved to be adequate for the purpose and is well suited for the derived compounds so far as we have tested them. It is necessary to remember that the request for examination should state the name of the drug that the patient is receiving, since much confusion arises when this is not done. Only the free form of the drug is effective so that determinations in the blood need not include the combined (acetylated) form.

The occurrence of renal calculi during the administration of some of these drugs—namely, sulfapyridine, sulfadiazene, and sulfathiazole—has been noted so often that the microscopic examination of the urine should be carried out frequently and thoroughly when these compounds are given. Unfortunately, there is a great deal of confusion concerning the crystal form assumed by them in the urine, and it is likely that the same substance may appear in more than one form. It may be said that if one detects crystals in the urine which cannot be identified as of a form ordinarily found there they are likely to be those of the drug being given. These crystals are colorless or yellow, may appear as broad or fine needles arranged in wedges or sheaves or sometimes built up into irregular balls or dumbbell forms, and have at times been mistaken for acid ammonium urate. They may be present in truly enormous quantities, the sediment forming as much as 10 per cent of the total volume of the urine.

Complaints have been made that when patients are receiving large quantities of sulfanilamide or one of its derivatives it may be impossible to culture organisms from the blood, urine, or spinal fluid, even though they may be present, because of the bacteriostatic effect of the drug in the material. During the past year it has been discovered¹³ that sulfanilamide is completely neutralized by *p*-aminobenzoic acid and, recently,¹⁴ it has been shown that the addition of this substance to culture mediums may lead to a success in the cultivation of organisms which would otherwise be impossible. It is claimed that the presence of *p*-aminobenzoic acid in the proportion of 5 mg to 100 cc of culture mediums will not inhibit the growth of any organisms and will completely neutralize the bacteriostatic effect of any sulfanilamide or derivative that might be present in the material. The claim has not yet been fully substantiated but is supported

by excellent evidence. Meanwhile, it would be wise for laboratories to use this medium in addition to those ordinarily employed when culturing materials derived from a patient receiving a compound of this group.

The methods that have been used for the cultivation of anaerobes have long been a source of dissatisfaction to bacteriologists because of their awkwardness and complexity. Clear liquid mediums that may be used for this purpose have been introduced in the past but for the most part require an elaborate method of application and maintain anaerobiosis for only a short period of time. To meet this situation, Brewer¹⁵ has devised a medium, which has come to be known as Brewer's thioglycollate medium, which appears to be nearly ideal for this purpose. This product remains anaerobic for more than a month, except for a thin surface layer, and will support the growth of the most strict anaerobes as well as if contained in an anaerobic jar. It has been found that "80 cc of sterile air per minute can be bubbled through a tube of the medium for thirty minutes and it will still support the growth of *Clostridium novyi*, one of the most strict anaerobes." In a rather limited use at the New York Hospital this medium has proved to be entirely satisfactory, and its introduction will be the source of much convenience and benefit to bacteriologic laboratories.

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Discussion

Dr. Ward J. MacNeal, *New York City*—I should like to emphasize the value of a culture medium containing a neutralizing substance when making blood cultures on patients under treatment with sulfonamide drugs. These drugs may exist in the patient's blood in sufficient amount to delay or prevent the development of bacteria in the culture, and one may fall into the error of believing that the blood has become bacteria-free when such is not the case.

SCIENTIFIC EXHIBITS

1942 Annual Meeting

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The Annual Meeting will be held April 27-30, 1942, Hotel Waldorf-Astoria, New York, New York. The list will be closed on January 1, 1943.

PETER IRVING, M.D., Secretary

PRINCIPLES OF TREATMENT OF EPILEPSY

With Particular Reference to the Surgical Aspect

WILLIAM P. VAN WAGENEN, M.D., Rochester, New York

EPILEPSY represents a physiologic insurrection and rebellion within the nervous system. Like its political counterpart, a revolt may start at any of the levels of government and spread far or remain local. The provoking incidents may be varied and manifold or they may be the same each time. The treatment may have to be on the basis of a broad change directed at all levels or it may be directed toward the eradication or isolation of an offending party.

Classifications of Epilepsy

A The variations of epilepsy may be classified in several different ways. The oldest and still best-known classification is that of petit mal, grand mal, and the epileptic equivalent. While such a division of the subject is a purely descriptive clinical one, it has the backing, in part, of investigators in electroencephalography who find fairly characteristic wave form changes in each of these types.

B A classification on the basis of known etiologic agents leads to a clearer thinking and a better understanding of the therapeutic problem at hand. Year by year some item is taken out of that catch-all basket called idiopathic epilepsy and given the standing it warrants on a pathologic or physiologic basis. Brain tumor of slow growth was once, and even now is, occasionally considered to be idiopathic epilepsy until an eventual diagnosis is made.

I. Intrinsic Organic Nervous System Lesions Associated with Epileptic Seizures.

1. Space displacing masses.
 - (a) Tumors, largely cerebral.
 - (b) Cysts of the pia-arachnoid—congenital, infectious, or traumatic.
 - (c) Cysts within brain—hemorrhagic, infectious, neoplastic, or congenital.
 - (d) Granulomas
2. Cicatrices
 - (a) Traumatic
 - (b) Infectious.
 - (c) Posthemorrhagic
 - (d) Ischemic

3. Infections
 - (a) Spirochetal
 - (b) Virus.
 - (c) Pyogenic
 - (d) Granulomatous
4. Degenerations.
 - (a) Diffuse and progressive—cause unknown.
 - (b) Isolated and stationary—cause unknown.
5. Vascular changes.
 - (a) Arteriosclerotic
 - (b) Angiospastic
 - (c) Congenital anomalies.
6. Congenital anomalies of brain.
 - (a) Microgyria—nonischemic in origin.
 - (b) Agenesis of cerebrum, local or diffuse.

II. Extrinsic Nervous System Agents Associated with Epilepsy

1. Toxins and/or poisons
 - (a) Febrile
 - (b) Metals and gases.
 - (c) Drugs and chemicals
2. Disturbances of metabolism.
 - (a) Water
 - (b) Carbohydrates.
 - (c) Proteins as in phenyl-pyruvic acid
3. Anemia—cerebral.
 - (a) Associated with heart disease
 - (b) Angiospastic

III. Idiopathic Epilepsy

1. Etiology is as yet not understood but is probably of intrinsic nervous system origin.

C A third classification may be made on the basis of disturbance of the electroencephalographic findings. This classification most nearly corresponds to the gross clinical type of petit mal, grand mal, and epileptic equivalent, for each of these types of fit has a reasonably constant pattern.

D A fourth classification essential to the surgeon is that based on the anatomic location of the origin of the fit and the level or levels involved so far as they can be determined. Certain telltale symptoms or observations may often lead to this information. The faithful recording of the events in a fit, particularly before consciousness is lost, by nurses, house staff, and attending physicians is of great importance in this regard.

1. Perioral motor areas—with focal or "marching" motor phenomena

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, May 1, 1941

From Department of Surgery, Neurosurgical Division, University of Rochester School of Medicine and Dentistry and Strong Memorial Hospital.

2 Postrolandic sensory areas—with focal or "marching" sensory phenomena

3 Occipital and temporal areas—with hallucinations of light, formed and diffuse

4. Temporal areas—with hallucinations of sound, formed and diffuse, with perceptual delusions of person and place, with dream states, and, questionably, with disturbance of attention

5 Olfactory areas—with hallucinations of smell

6 Frontal—with psychic fits without motor component (?)

7 Diencephalic—with disturbances of autonomic nervous function and with simple transient partial loss of contact with environment (?)

8 Mesencephalic—with fits of decerebrate postures

9 Bulbosplinal—with gross myoclonic fits

Mode of Spread of a Fit

A great deal of information, clinical and laboratory, points to the belief that the disturbed wave of electrical impulses thought to give rise to a fit travel by way of nervous pathways. Nothing to the contrary has yet been proved. However, it could be conjectured that other types of electrical waves giving rise to a fit could pass through fluid medium of the brain much the same as radio waves pass through the ether. For the present, however, we must proceed and work on the principle that anatomic conduits are the only means of spread of a fit.

Where the fit has its origin in the cortex, the spread may be downward into the basal ganglia and diencephalon, giving peripheral manifestations of abnormal function of one or all of these levels. The reverse would also seem to be true. Fits starting in the basal ganglia may spread upward to the cortex and be reflected from there to appropriate areas. By piecing together bits of information, it would appear that the first effect of the abnormal wave originating in or striking an area was one of stimulation followed by one of paralysis. The wild tonic and clonic movement of an arm or leg may be followed by palsy. The most dramatic of the paralytic effects, if such it be, is the loss of consciousness. No one knows with certainty where the seat of consciousness lies or if it lies in any one discrete area. There is some good evidence pointing to a posterior diencephalic and upper midbrain residence. On the other hand, large cortical lesions, suddenly produced or stimulated, are associated with loss of con-

sciousness. Manually occluding the middle cerebral artery when exposed in the sylvian fissure under local anesthesia may lead to a rapid temporary loss of consciousness. The same is seen in embolic phenomena, though the loss of consciousness is much longer.

It must not be assumed that the site from which the first clinical symptoms arise during a fit is necessarily the site of its origin, for the abnormal wave may simply "bump" into a symptom-producing area on its way elsewhere. Only too frequently are motor phenomena a first hint of a fit from a scar in the frontal pole.

Principles of Treatment

The principles of treatment of epilepsy in a given patient must naturally vary with the concept of the disease in that person. It cannot be too strongly emphasized that each case is just as much an individual problem as a tumor situated in various levels of the nervous system would be.

Principle I Eradication of "Firing Points"
—Since at the present day it is held that a particular fit starts in one area, this area may be considered for surgical eradication where its location makes this possible. Examples are neoplasms, cysts, and scars. All too frequent is the observation that as soon as one offending "firing point" is eradicated another one just as potent assumes control. This is particularly true of brain scars.

Case Report

Case 1—G F H., a boy aged 17, had a chief complaint of "spells." His birth history is as follows. The patient was delivered by instruments. The head was molded until "it looked like a Zeppelin," the chin being one point and the occiput the other. One blade of forceps was over the right eye and the other was over the left occiput. There were large bruises at each point, the eye being swollen shut. These bruises did not clear up for about three months. As a baby he was "very nervous" and slept but little.

Two to three weeks after starting school at the age of 6, he had the first attack of spells. He felt rather unwell, and several times during the day he had a slight gnawing sensation in the region of the right temple which came on without warning, lasted a few seconds, and left no sequelae. This was repeated again in two to three weeks. His physician prescribed certain pills that resulted in the disappearance of these symptoms for a few weeks. The feeling of being unwell then became so severe that he had to leave school on the days that he had the attacks, and he has never had a full year of schoolwork since. The early attacks, which were called "little spells," lasted until he was 9 or 10 years old when he began to have "big spells."

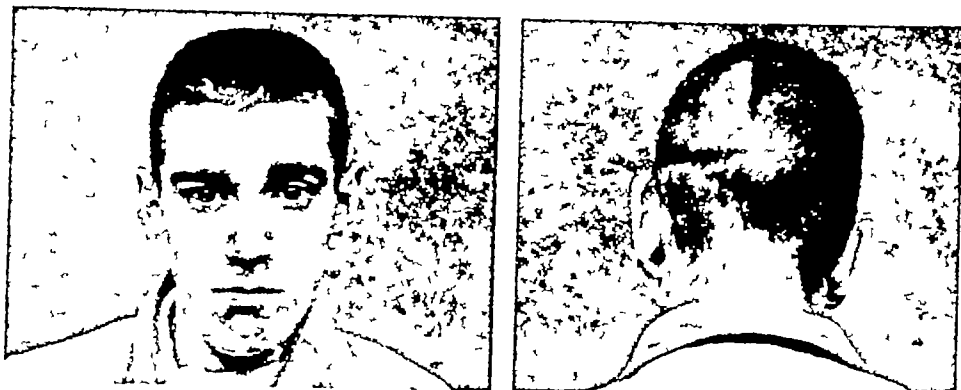


FIG 1 Photograph of patient during hospital stay in 1929 showing facies and operative wound.

The big spells consisted of the same gnawing sensation in the right temporal region as before but lasted longer and ended with a period during which he would see flashes of light "just like lightning" out of the temporal corner of the right eye. At first he remained conscious throughout the attack, but later and especially more recently—that is, 1929—he has had spells during which he felt numb all over and knew nothing of his surroundings until the end of his attack. He has never fallen and has no other signs to give evidence of falling during an attack. He has had attacks, however, while riding a bicycle through traffic but by some miracle escaped without serious injury. The longest period of freedom from attacks has been three months. Treatment has consisted of many forms of medication. Each medicine prescribed would have a mild beneficial effect for a short period of time.

During the year prior to admission in 1929 he lost weight and became depressed, morose, combative, and at times assaultive. Some of these attacks of depression would be accompanied by a sense of dizziness during which the floor seemed to rise in front of him and appear higher the farther away that it went. Following the big spells he would have severe headache and be fairly lethargic for a period of hours. He had had incontinence during the night until the age of 7. This stopped but began again with the onset of big spells at the age of 9 or 10 and continued until the age of 15.

The patient was thought to have a left occipital lobe scar. The entire occipital lobe was excised on March 7, 1929. He had freedom from any attacks until September, 1939, when he began to have petit mal attacks again. He has not had a return of grand mal attacks (Fig 1).

Principle II "Blanketing"—Where there are thought to be many irritable foci—these located in different levels of the nervous system—the principle of "blanketing" must be resorted to. Particularly true is this of the patient with petit mal, as well as grand mal,

fits or equivalents. The use of drugs to lower the receptivity of nerve cells to incoming stimuli is well known. Whether drugs lower the discharge rate or potency of the irritable focus is not known. Bromides, phenobarbital, dilantin, and the products of an acidosis are well known to you all. Illustrative cases of the benefits of such medication can doubtless be had from the practices of every doctor in this field. A word may be said against the continued use of these drugs when reasonably effective results are not forthcoming in a few weeks' time.

Principle III "Counterstimulation"—Another well-known age-old principle is that of neutralizing stimuli from a "firing point" by counterstimuli from a peripheral somatic area. Many an epileptic has learned some trick to "ward off" an attack—such as rubbing the hand vigorously, getting into a hot tub of water, or drinking some favorite, often nauseating, mixture.

The recognition of the periodicity of epileptic seizures in certain people has been recognized since the beginning of medicine itself. This periodicity has been associated with the menstrual cycle. There cannot be any question of the coexistence of seizures with the menstrual cycle at times. For this reason the device of electrical shock producing a seizure periodically has been resorted to. Reports on this procedure are of relatively recent date for final evaluation.

Principle IV "Ditching"—The principle of "ditching" is an old one in fire fighting and one that I have been most interested in of late. It consists of trying to prevent the spread of an epileptic fit by surgical section of association pathways where this is possible. The pathways amenable to this are the corpus callosum and anterior commissure and the fornix sys-

tem The case selected is one where the firing point or points seem limited largely to one hemisphere and where the offending area or areas cannot be eradicated without serious neurologic consequences—such as palsies and speech disturbances. The theory behind this procedure is the often-made observation that where the fit remains localized to one hemisphere the patient does not tend to lose consciousness.

This work was undertaken with moderate trepidation, inasmuch as these pathways were considered as fairly holy ground and certainly not fit for a surgical desecration. Portions of these association pathways have been sectioned from time to time by various surgeons incident to tumor removal. On a basis of more than 25 cases, I can assure you that these pathways are not sacrosanct and may be divided without untoward effect—such as the production of a motor aphasia, apraxia, alexia, dissociation of motor movements, astereognosis, permanent incontinence of bladder or bowel, or the onset of the so-called Korsakoff's syndrome, the onset of cortical deafness, etc.

It must be realized that the corpus callosum and the anterior commissure are not the only interhemispherical association pathways. A fit may spread via the habenular, the posterior commissure, and by midbrain pathways. It must also be remembered that a fit originating in basal ganglia or diencephalon may discharge upward into each hemisphere whether the mentioned association pathways are intact or not. Assuming that there are firing points in each cortex, there is no reason why each of them may not "fire" simultaneously and a generalized fit result. We have seen a patient with a partially divided corpus callosum have a series of Jacksonian fits on the right one day and on the left the next and, with hydration, have the one side begin with a fit be followed by a similar one on the other, and a grand mal attack result.

The problem of limiting the spread of a fit known as an epileptic equivalent by means of a prefrontal lobotomy is under investigation and is worthy of a real trial.

While any procedure carried out on an epileptic patient takes years to evaluate and numbers to argue from, I am convinced that this procedure has a real place in the surgical attack on this problem. Work on the problem of eliminating the epileptic equivalent type of fit by prefrontal lobotomy or similar white fiber section is in its beginning. A further report on this will be made at a later time.

Case Report

Case 2—E C C, a single woman aged 28, was first seen in this hospital on September 26, 1938, at which time she complained of convulsions of some five years' duration. The patient states that she was in good health until some six years prior to 1938, when she was in an automobile accident and struck her head against the roof of a car. The accident was not a severe one and the connection of this accident with the complaint of convulsions is dubious. The first convulsive seizure was a grand mal attack coming on during sleep and lasting some five to ten minutes. Seizures had continued from that time until the date of operation on November 6, 1939. At times the convulsions began with a sensation of numbness and tension in the left face followed by clonic contractures of the left side of the face which spread to the left arm and leg and then became generalized. The patient usually lost consciousness with an attack, bit the tongue, occasionally lost control of the sphincter, and had a period of drowsiness following the seizure. The physical examination gave evidence of a slight left-sided atrophy of the arm and, to a less extent, of the leg. There was a slight facial weakness of the left lower side. A ventriculogram gave evidence of a diffuse atrophy in the region of the right temporoparieto-occipital area (Fig 2). The patient had been taking sedatives of various types since around 1933. She had been tried on a ketogenic diet, limited fluid intake, and daily magnesium sulfate administration, all without any particular effect on the seizures. On November 29, 1939, the corpus callosum was completely divided, together with one limb of the fornix. The patient has not had a grand mal seizure since that date. She has had numerous unilateral seizures consisting of numbness of the entire side and a few tonic and clonic movements of the left arm and leg but never with loss of consciousness. Her ability to think, reason, remember, calculate, etc., is intact. Physically, she is as intact as before operation. There is no evidence of an astereognosis or an apraxia.

There are many interesting and fascinating side chains to this study which cannot be gone into at this time. The effect of association fiber section on the speech disorder of stuttering is one. If stuttering is a fight for dominance between hemispheres, a section of the corpus callosum might be thought of as a means of stopping it. Such is not our experience in 2 cases. The speech disorder goes on unchanged.

Principle V Blanketing by Means of Altered Metabolism—Another principle of treatment of the epileptic not suitable for surgical eradication of firing point or ditching is that of alteration or blanketing of the cell

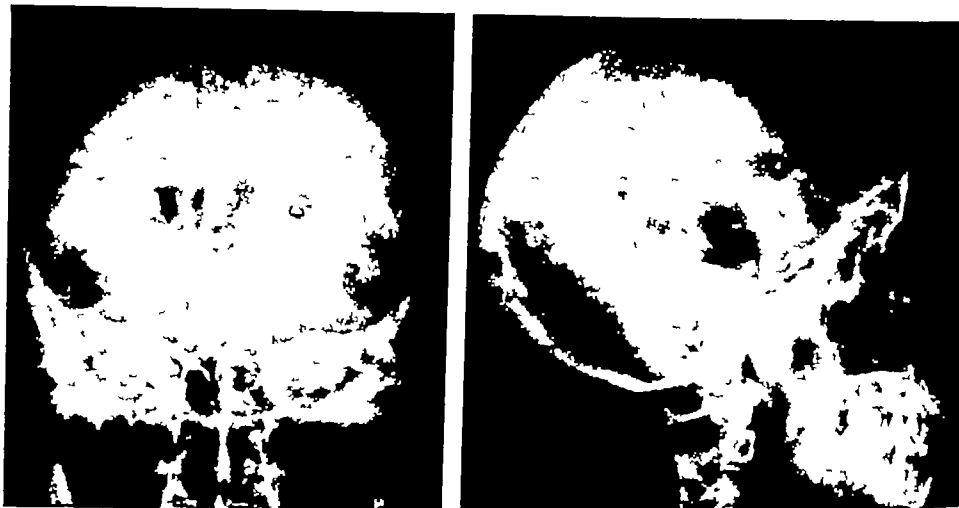


FIG 2 CASE 2 Ventriculogram films to show the dilation of the right temporo-occipito-parietal lobe of the brain

receptivity by the products of acidosis. High fat diets and limitation of water intake fall within this category. Numerous papers since those of McQuarrie and Fay have dealt with the relation of hydration to the epileptic state. As a result of experimental work on diabetes insipidus carried out by Dr Rowland Bellows and myself, I believe that it is a chronic dehydrating disease. The bodily water transport is large, and the water balance tends to be a negative one. Proceeding on this theory, work is underway to treat surgically a group of hopeless epileptics by producing a state of diabetes insipidus. The procedure is in the period of trial, and reports on it will have to be made at a later date. Incident to this is a study by the Medical Service—Drs Keutmann and Kaltreider—of the distribution of water in the intercellular and intracellular spaces in diabetes insipidus by means of the radioactive sodium method, as well as the other better known methods.

Case Report

Case 3—J. B., a single man aged 24, had a chief complaint of epileptic seizures for nine to ten years. He has had many petit mal seizures, as well as grand mal attacks. The patient has been observed in a number of instances in which he was in *status epilepticus*. Needless to say, this man has been studied from every point of view. He has had every known form of treatment *in extenso* without any appreciable change in his condition. The neurologic examination was essentially negative. From the mental point of view the man was much deteriorated. He was able to do certain things with quite a good deal

of facility—such as carrying out card tricks and amusing others about the ward. He was extremely religious and could pray with a great deal of fervor. He was able to sing a number of songs and at one time participated in a small act in vaudeville. The electroencephalographic record gave evidence of numerous petit mal attacks, as well as grand mal seizures. All the details of laboratory findings will not be gone into at this time. Suffice to say that he has been studied with particular reference to the intracellular and extracellular water content by the Medical Service. The method employed has been that of estimation of radioactive sodium in these spaces. On April 21, 1941, a craniotomy was done, at which time a hypothalamic puncture was made at the upper end of the pituitary stalk. The approach was through the corpus callosum, which was divided from the junction of the body of that structure with the fornix. The anterior commissure was divided and the right limb of the fornix. The patient developed the primary phase of a diabetes insipidus. The secondary phase is just beginning. The patient has taken as high as 6,000 to 7,000 cc of fluid a day. Up to the present time he has not had a convulsion. It is appreciated that this patient is early in his post-operative course, and no deductions are being drawn regarding the ultimate result.

This patient is one of the few hopeless epileptics who have been treated in the last few years by means of punctures or lesions of the pituitary stalk designed to bring about a diabetes insipidus. The individual, G. T., who was operated upon some four to five years ago has not had a grand mal seizure since, except associated with a hypoglycemia. The hypoglycemia is due to a lesion of the pituitary body

itself and subsequent atrophy of the adrenals.

I believe that it can be stated with certainty that any epileptic that we have ever seen would have had a series of severe convulsions in the postoperative state had he been hydrated to the extent that the patient J B has been.

Summary

The direct surgical attack on a known or proved single firing point from which a fit is thought to start is obvious, where it can be done, and should probably have first consideration among surgical procedures. Methods of search for a firing point, such as a scar, are laborious and time-consuming and often fruitless. The history may give a lead suggesting the neighborhood of origin of the fit. Distant foci setting up waves that "bump" the area must ever be remembered. The electroencephalogram in experienced hands may give a clue to an area of persistent abnormal waves, and from this the presence of a firing point may be suspected. Air encephalograms may aid in picking up scars by revealing areas of cortical or subcortical atrophy. Stimulation of the suspected area after a craniotomy, under local anesthesia, may confirm the site of the focus by producing a fit typical of that complained of. The use of the electroencephalogram on the exposed cortex is one with which I have not had experience.

Eradication of the "firing area" is not always simple. Excision of one scar may lead to a larger one. Wherever possible, the crater of the excision should connect with a ventricle in order to permit it to fill with a pool of cerebrospinal fluid. Various devices are in order to prevent a reforming of adhesions between the dura and brain—such as the use of amniotic membrane, peritoneum, etc. The presence of one proved scar or firing point does not necessarily mean there are not others that are only too ready to carry on. Particularly is this true in the scar of traumatic and infectious origin. Eradication of a true firing point has the advantage of limiting, and perhaps abolishing, bombardment of the basal ganglia and diencephalon by abnormal brain waves leading to unconsciousness.

Should clinical and laboratory studies give evidence of a widespread hemispherical scar too extensive for excision, or in a zone not amenable to surgical removal, a section of certain major association pathways is certainly in order, inasmuch as it can be done without any more serious consequences to the patient than removal of a scar.

Should the patient be thought to have fits originating in the basal ganglia or diencephalon, an alteration of water metabolism by means of a suitable hypothalamic puncture may warrant consideration after other usual medical measures have failed.

Surgical Technic

The surgical technic of scar excision, association pathway section, and hypothalamic puncture for the production of diabetes insipidus is too extensive to be dealt with here.

Selection of Cases for Surgical Attack

The selection of cases for surgical attack is one that is bound to vary from clinic to clinic depending on the facilities and interest of the personnel. All agree that every search should be made for extracranial faults—such as altered metabolic states, infection, etc. A fair trial of methods of blanketing is in order in most instances. When the blanket becomes too heavy or is ineffective, the possibilities of surgical methods outlined are worthy of real consideration.

Discussion

Dr Eldridge Campbell, *Albany, New York* — There is no greater problem in medicine today than epilepsy. From the study of this dreadful malady in the past have come not only many efficacious methods of treatment but also several important advances in the physiology of the central nervous system. It is to be recalled that from an analysis of the march of the fit, Hughlings Jackson first postulated the existence of the motor area itself. From Dr Van Wagenen's report of the effect of corpus callosum section, at least two points of practical neurologic significance have emerged. In the first place, the entire corpus callosum may be divided with the same impunity that Dandy has found in sectioning the posterior two-thirds. This is rather surprising in view of the older teachings and of the mental symptoms that usually accompany gliomas involving this structure. In such instances, invasion of the adjacent cerebral hemispheres must play a large role in the production of apraxia and astereognosis. Secondly, division of the forward portions of the corpus callosum affords an advantageous route for the removal of tumors in the anterior portions of the third, and even of the lateral, ventricles.

It is important to consider epilepsy a symptom. As such, it is of particular interest to remember that fits may be, and indeed often are, for long the only manifestations of a brain tumor. Just recently, I removed a huge temporo-occipital lobe glioma from a 50-year-old man whose only symptoms for seven years had been occasional generalized fits. Of all the patients with cerebral

tumors operated upon at the Albany Hospital, 24 per cent had convulsions as a prominent symptom, and in several instances these long preceded any other complaint. One patient had had Jacksonian seizures for ten years, and several had been so afflicted for more than five years before the tumor had otherwise announced its presence.

Indeed, in this group the average duration of convulsions prior to admission was nineteen months.

It is well to remember then that the onset of convulsions in a person past the age of 35 should mark the patient as a brain tumor suspect until proved otherwise.

NOTED ENGLISH PSYCHIATRIST TO LECTURE HERE

Dr R. D. Gillespie, who is now chief psychiatrist for the British Royal Air Force, is coming to this country at the request of the Salmon Committee on Psychiatry and Mental Hygiene of The New York Academy of Medicine. He will deliver the Salmon Memorial Lecture in the New York Academy building November 17 and 18, speaking on "Psychoneuroses from the Standpoint of War Experience."

Dr Gillespie's observations made under actual war conditions are expected to be of inestimable value to American psychiatrists in formulating plans for maintaining civilian morale in wartime. His lectures will also give his hearers new information concerning the pressing psychiatric problem of today—the psychoneuroses.

Dr C. Charles Burlingame, chairman of the Salmon Committee, which each year chooses an outstanding specialist in psychiatry, neurology, or mental hygiene for the Salmon Memorial Lecture, has issued a general invitation on behalf of the committee to members of the medical profession and their friends to attend. Dr Gillespie will be the ninth lecturer who has been selected from the top-ranking psychiatrists and neurologists throughout the world who have made the greatest contribution to their field.

during the preceding year. Selection for delivering the Salmon Lecture has been likened to selection for the Pulitzer Prize in letters.

Dr Gillespie is the author of two medical volumes *Disorders in Sleep* and *Textbook of Psychiatry*, a reference work in collaboration with Dr D. K. Henderson, of Edinburgh, who is a former Salmon lecturer. Before he undertook his wartime duties as chief psychiatrist for the R. A. F., Dr Gillespie was the lecturer in psychologic medicine at Guys Hospital and Medical School in London. He was also the lecturer in psychopathology at the University of Aberdeen. He received his medical degree from the University of Glasgow and his doctorate in psychologic medicine from the University of London. He is a member of the Royal College of Physicians.

Among Dr Gillespie's many important findings concerning the psychologic effects of modern warfare on civilians and combatants is the fact that chronically neurotic people and those suffering from mild depressions have become chronically heroic and self-sacrificing under the stress of bombing raids. Also, he has noted that women stand up as well if not possibly better than men under civilian bombings.

CHILDREN'S BUREAU NEEDS MATERNAL AND CHILD HEALTH SPECIALISTS

Employment registers are to be established by the Civil Service Commission to fill maternal and child health specialist positions in the Children's Bureau of the Department of Labor. Vacancies in similar positions in state agencies cooperating with the Children's Bureau may also be filled from these registers at the request of the states concerned. The examination announcement just issued by the Civil Service Commission to recruit persons for these positions allows the filing of applications until November 15, 1941.

There are three options in which persons may qualify—pediatrics, obstetrics, and orthopedics. For each of these options employment lists will be established for administrative, research, and clinical positions. The duties of the administrative positions include giving consultations and advisory service to state and other government agencies carrying out maternal and child health programs. The research positions involve the planning or directing of studies in such fields as infant and maternal mortality and child

growth in relation to social, economic, and other factors. Persons appointed to clinical positions will do clinical work in one of the options.

A written test will not be given for these positions. Competitors will be rated on their education, experience, and corroborative evidence. Applicants must have graduated from a medical school of recognized standing with an M.D. degree and must have served a one-year internship. In addition, they must have had full-time postinternship clinical training as well as other appropriate experience in the option selected and in the type of work in which they seek appointment.

Doctors of medicine who are interested in this opportunity for government employment are urged to seek further information about these positions, which pay from \$3,200 a year to \$5,600 a year. Further information and application forms may be obtained from the Commission's representative at any first- or second-class post office or from the central office in Washington, D. C.

OXYCEPHALY

JOSEPH E J KING, M D , New York City

IN NOVEMBER, 1937, I made a preliminary report of a new operation for oxycephaly in a paper read before the New York Neurological Society in the Section of Neurology and Psychiatry of The New York Academy of Medicine. In this paper a case operated upon by this method was reported, including the details of the operation and the follow-up record for a period of a few months.

A later report will now be made after a period of about four and one-half years, together with a report of another case that I operated on and other cases operated upon by colleagues.

In the original, indications for operation were reviewed, as well as a brief description of the operative procedures that had previously been employed in the hope of relieving this condition. None of the operations appeared to have been followed by good results. Since publication of my paper in 1938, a number of papers on the subject have been published, these have been reviewed. Only a small amount of space has been devoted in any of these papers to relief of this condition by operation. Subtemporal decompression was mentioned more than any other operation, and this afforded only temporary relief.

Therefore, I wish to bring to your attention further information regarding the proposed operation that worked so well in the first case and that has had equally good results in some other cases operated upon by colleagues.

Case Reports

Case 1—E. C. was operated upon at the age of 8 years on November 10, 1936. When he was 3 years old he had sustained a fracture of the right femur, for which three attempts at reduction, both open and closed, had been made before admission without effect. There was present a malunited fracture of the femur on admission. After recovery from the operation for oxycephaly the malunited fracture was operated upon with a good result.

A recent report on this patient has been obtained, together with his photograph and x-ray films of the skull. This boy is now 13 years old, is well developed, and is attending school. His grandmother states that he keeps well and has not missed a day at school. He wrote me a letter

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 30 1941

Director of neurosurgery Second Division (Cornell) Bellevue Hospital.

from his home in Halifax, Nova Scotia, dated January 28, 1941, as follows:

"I was glad to hear from you. Since I have arrived home from the States I have been feeling fine. In school I have been doing pretty well, but I suppose I could do better. My leg is feeling stronger now. There is plenty of ice, so I do lots of skating.

"Grandmother was glad to hear from you. Enclosed you will find the x-rays and the pictures which you wanted, and my examination papers. I am ending, hoping you are all well. Remember me to Dr.

Yours truly,
Eddie "

He is in Grade 5. He sent me his examination paper in spelling, and most of the words were correctly spelled.

These simple facts are reported for the reason that this boy had had but little schooling before his operation, and had not attended school for at least a year before the operation on his head. Most significant, however, was the fact that he was almost blind and could not distinguish the features of one standing at the foot of his bed. About six months following the second stage of the operation, he was able to recognize a person as he entered an assembly hall at a distance of 100 feet or more.

The results four and one-half years following operation on this boy are most gratifying.

Case 2—E. H., a negro boy aged 5, was admitted to Lawrence Hospital, Bronxville, New York, on October 17, 1940.

The birth of this child was apparently quite normal. There were 12 other children in the family, with 7 living. A brother, 6 years old, showed an elongated, flattened skull but was otherwise in good condition. There was no history of oxycephaly in the family. Lumbar puncture and encephalograms were not considered necessary.

Examination revealed a child, intelligent for his age. General and neurologic examinations were negative. There was slight bulging of his eyes, but this was not marked. The intrinsic and extrinsic eye muscles were normal. X-ray films of the skull previously made by Dr. C. I. Headland, who referred the case, revealed the following:

"Films made of the skull in the anteroposterior and posteroanterior and both lateral directions show a high, pointed skull of the type known as oxycephaly (Figs. 1(a) and 1(b)).

"This is due to premature ossification of the suture lines. As a result, increase in the size of the brain causes increase of pressure within the cranial vault with resulting protrusion upward in the region of the junction of the coronal and

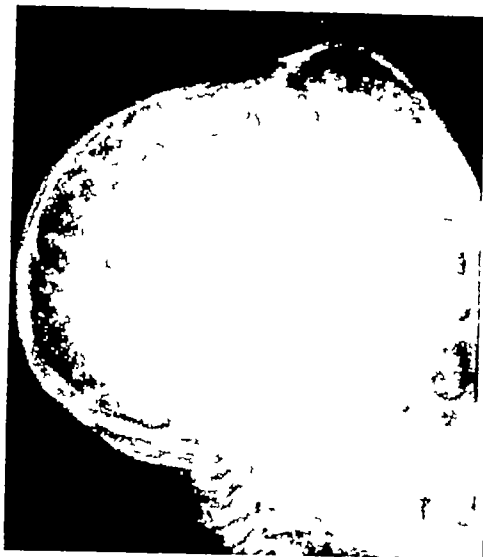


FIG 1(a)



FIG 1(b)

Figs 1(a) and 1(b) E H, preoperative x-ray films of skull showing deformity, convolutional markings, shallow orbit, and prognathous jaw



FIG 2(a)



FIG 2(b)

Figs 2(a) and 2(b) E H, preoperative photographs showing typical malformation of head and prognathous jaw. Proptosis of eyes least marked in this case

sagittal sutures, pressure downward into the middle fossa, and pressure forward, causing protrusion of the eyeballs due to shallow orbits. The convolutional markings are unusually prominent due to increased intracranial pressure.

"This will eventually result in blindness due to

papilledema and a secondary optic atrophy and may probably result in idiocy unless the condition is corrected surgically."

On the day before operation a blood transfusion of 200 cc was given. The day of operation, October 22, 1940, his head was shaved and it

showed a most peculiar formation (Figs 2(a) and 2(b)). There was an apical bulging at the site of the anterior fontanel which protruded $1\frac{1}{2}$ inches or more above the level of the narrowed skull like a haystack. With the head shaved, the prognathous jaw was accentuated in appearance.

The operation as previously advocated was carried out but in this case in one stage. A midline incision, extending from the hairline on the forehead directly backward, bifurcating and extending for a distance of about $1\frac{1}{2}$ inches just above the external occipital protuberance, was made. All of the soft parts, including the pericranium, were stripped off the skull and reflected downward over the ears. This afforded proper exposure of the entire vault of the skull. The skull was cut in variously shaped and sized pieces. It was necessary to cut that portion of the skull forming the marked protuberance in smaller pieces in order to have them conform properly.

During the procedure the same phenomena—i.e., bulging of the dura between the partially cut pieces of bone, pulsation of a bone flap, etc.—were observed. Upon completion of the operation one could readily perceive that the proper shape of the skull had been restored and that the eyes were less prominent (Fig 3).

A protective dressing was applied. The incision healed kindly. A radiographic report on November 1, 1940—ten days following operation—reads as follows:

"Films made of the skull in the anteroposterior, and posteroanterior and both lateral directions (Figs. 4(a) and 4(b)) show that approximately seventeen holes, 1 cm. in diameter, have been drilled through the upper portion of the frontal and both parietal bones. The bone has been cut between these holes leaving a checker-



Fig 3 E H, photograph made on the table immediately following operation

board appearance in the upper half of the cranial vault. The separation between the rectangular fragments varies between 1 to 4 mm. The deformity of the upper and anterior portion of the cranial vault which was apparent on the original films has completely disappeared."

There was noted the same semisolid sensation on palpation of the skull observed in Case 1. The sections of the skull became fixed rather rapidly. When he was discharged on November 19, 1940, the vertex offered rather firm resistance on pressure. Complete filling in of the intervals between and fixation of the pieces of bone can be expected. The operation was performed in this



Fig 4(a)



Fig 4(b)

Figs 4(a) and 4(b) E H, x-ray films of skull made on tenth postoperative day

case to prevent blindness and mental deterioration.

Case 3—In February, 1940, Dr Barnes Woodhall, professor of neurosurgery at Duke University, wrote to me as follows

"Some time ago Dr Deryl Hart gave me a reprint published by you in the *Archives of Neurology and Psychiatry*, December, 1938, on the subject of oxycephaly, describing your new procedure for its relief. I had been treating these children with and on my own service here with bilateral decompression and naturally had never been fully satisfied with our results

"I was much impressed with your new procedure, and I am taking the liberty of forwarding to you some photographs and x-rays of a case in which it has been applied. In this child the intracranial pressure was terrific and, as you will see in the x-rays, the right side expanded a great deal following morsellation. When the left side was done at a later date the expansion was not so marked. However, the clinical result except for the slight asymmetry is splendid. The child's vision has improved, the exophthalmos has decreased, and the child has become very alert and, according to its mother, completely transformed.

I have several more patients in whom I should like to try this procedure, and I should greatly appreciate any criticism you may have from your experience."

Dr Woodhall sent photographs and x-rays of this patient, but did not send the clinical record, therefore, the case report cannot be given more completely

Case 4 (Clinical record from Dr Barnes Woodhall)—T C, a white girl aged 14, was born with a peculiarly shaped head and protruding eyes. She was admitted to Duke Hospital June 6, 1940, with the complaint of convulsions of ten months' duration. During the convulsions there was cyanosis, unconsciousness, urinary incontinence, and a drawing up of the hands and legs. The seizures had increased in frequency and severity. When she was admitted they were occurring five and six times a night. There were marked bilateral exophthalmos and other typical features associated with oxycephaly. A prominent smooth bulge in the anterior fontanel measured about 4 or 5 cm. Optic disks were a trifle hazy, vision was 20/200 in the right eye and 20/400 in the left eye. X-ray films of the skull showed a typical picture of oxycephaly with decided convolutional markings and absence of suture lines. The sella were small and deep

Lumbar puncture revealed 240 mm water spinal fluid pressure. Encephalograms showed typical small ventricles without loss of symmetry. The blood and spinal fluid Wassermann and Kahn tests were negative. Electroencephalograms showed the presence of delta waves over the entire cortex, indicative of diffuse increased intracranial pressure. She was

discharged to return when hospital arrangements could be made

The patient was readmitted in November, 1940. A complete examination from all angles was made, including endocrine consultations, audiograms, electroencephalograms, Binet's test, etc.—too detailed to report here. The exophthalmos had increased enormously from November 5 until the time of the operation in the middle of November. The typical operation was done on the right side by Dr Woodhall, to be followed by a second stage on the left side at a later date. She made a good recovery. Comparison of the photographs before and after the first procedure showed marked recession of the bilateral exophthalmos. Vision, which had gradually become less between the time of the first examination and operation, improved. Electroencephalograms showed improvement

Other Cases—I have reports of 3 cases operated upon by Dr R F Slaughter, professor of neurosurgery at the University of Georgia, in which he stated that improvement followed operation in each case. All had rather high initial pressure on lumbar puncture, ranging from 250 to 300. All had exophthalmos and some of them had optic atrophy. All were quite dull and lethargic before operation and had the typical bulging of the dura between the cut margins of bone at operation. In his third case only one side has been operated upon.

Sufficient evidence is presented to warrant the use of this operation in cases of true oxycephaly. It is advised that the operation be done before failing vision occurs

Summary

1 Oxycephaly, including various skull deformities, can be relieved, loss of vision can be prevented, and mental acuity can be improved or restored by the operation that has been described

2 A follow-up of the original case showing restoration of vision and mental and physical activities is given.

3 Reports of other cases with immediate improvement are made

4 The procedure is *not* advocated in cases of microcephaly or idiots

5 Good results should follow performance of this operation in cases of *true* oxycephaly

140 East 54th Street

Discussion

Dr Fred W Geib, Rochester, New York—Dr King has made a great contribution for the relief of increased intracranial pressure in oxycephaly by inventing the mosaic craniotomy. Apparently in vigorous patients it can be done

in one stage, although it may be a bit safer to follow his two-stage technic. Certainly before Dr. King gave us this operation, we were discouraged with the results of operating on these cases.

Faber and Towne, in reporting "Early Craniotomy as a Preventive Measure in Oxycephaly and Allied Conditions with Special Reference to Prevention of Blindness," say that the symptoms of vomiting and headaches do not play an outstanding role because the intracranial pressure hardly ever attains a considerable degree. This means we are dealing with a slow insidious process that should be recognized much earlier. The ophthalmologists usually see these patients first because of failing vision. The youngest patient mentioned in Dr. King's series, I believe, is 5 years of age. Faber reported operating on a patient 6 months old on whom he did a linear craniectomy. I operated on a child 21 months old who had early fusion of the sutures, but the anterior fontanel was open and bulged out, giving a unicorn appearance. Knowing we could not do a mosaic craniotomy because we would be unable to suture the scalp

together, we tried a cross craniectomy on one side. The incisions through the scalp were stopped near the center of the cross to prevent a four-cornered closure and to help hold the scalp together with some intact blood supply. The child did well, although the flaps were under tremendous pressure. In the intervening two months he began to walk, his speech became clearer and his vocabulary increased, his exophthalmos decreased, fretfulness and holding his head disappeared, and there was a rounded contour of the skull on the operative side. We did the same procedure on the opposite side and lost him a few hours later from herniation into the foramen magnum. I mention my experience with this early type of case because of the tremendous increase of intracranial pressure which is not seen in the older cases. It seems reasonable to suppose that the extra capacity attained by doing the mosaic craniotomy is enough to alleviate the disproportion between a growing brain and a stationary skull in older patients, but in younger patients I wonder if we will not have to do further skull expanding operations after several years have elapsed.

PUBLIC BECOMING AWARE OF ADVANTAGES OF ETHICAL, PRESCRIBED REMEDIES

"Education is making the public aware of the advantage of using ethical remedies and prescribed remedies," the *Journal of the American Medical Association* for June 21 declares in commenting on the results of recent federal legislation affecting prescriptions and "patent medicine" claims.

"When the new Federal Food, Drug and Cosmetic Act was enacted," the *Journal* says, "many doubted its effectiveness. Similar consideration was given to the Wheeler-Lea Amendment to the Federal Trade Commission Act, which became a law at about the same time. Now some figures have become available which seem to indicate clearly that such legislation is having a desirable effect. The *American Journal of Pharmacy* for January, 1941, contains an item under the title 'The Nation Takes Its Medicine,' noting that prescription drugs and medicines showed an increase of \$36,000,000 for 1939 over 1937 and that 'patent' and proprietary medicines for public sale decreased \$18,000,000 in

value in the same period. The actual value of the prescription medicines in 1939 was \$178,930,487. The value of 'over-the-counter' medicines in that year was \$166,577,263. Obviously, therefore, the permissible claims for 'patent medicines' today are so restricted as to reduce their sale to the public, or the public is becoming better informed as to the advantages of employing ethical remedies and prescribed remedies. The *Drug and Cosmetic Industry* for December, 1940, provides an analysis in its story 'Ethicals Take Lead.' Apparently vitamins showed the greatest gain, glandular preparations also advanced, and the use of biologic preparations was adversely affected by the popularity of sulfanilamide in infectious conditions. If, by action of the various federal agencies, the sales of 'patent medicines' continue to decrease, a new day will dawn for the health of the American people.

"The health of the nation is an integral part of national defense."

NINETY-TWO AMERICAN DOCTORS HAVE QUALIFIED FOR SERVICE IN GREAT BRITAIN

A total of 230 applications, up to September 4, have been received by the American Red Cross from physicians wishing to enroll with the Royal Army Medical Corps in response to a British Red Cross request for American physicians, the J.A.M.A. for September 13 reports.

"Of these," the *Journal* says, "138 had been found unqualified because of age, lack of citizenship, or other similar reasons. Ninety-two have been qualified and 42 have been given passports to Great Britain, the remaining 50 are in process."

THE CHEMOTHERAPY OF PYOGENIC MENINGITIS WITH THE SULFONAMIDES

WILLARD B WEARY, M D , and JOHN J A LYONS, M D , Albany, New York

CHEMOTHERAPY with the sulfonamide drugs has significantly reduced the mortality rate in all types of pyogenic meningitis. The purpose of the present study is to present the results of treatment of staphylococcus (aureus and albus), Streptococcus hemolyticus, pneumococcus, and meningococcus meningitis. The material is based upon the treatment of 20 cases of meningitis and upon a review of the recent literature. Certain pitfalls in the chemotherapy of meningitis are emphasized. Observations concerning cerebrospinal fluid drainage and the subcutaneous administration of the sulfonamide drugs are presented.

Staphylococcus meningitis, though relatively rare, has been practically 100 per cent fatal until recent months. Experimental evidence concerning the bacteriostatic effect of sulfathiazole on the staphylococcus indicates that it is the most effective of the sulfonamide group.¹ Long states that sulfathiazole is the drug of choice in the treatment of all types of staphylococcal infections with the exception of meningitis.² This exception is based upon observations that sulfathiazole does not readily pass into the cerebrospinal fluid.³ On the other hand, Banks has reported a 21 per cent mortality in sulfathiazole treatment of meningococcal meningitis.⁴ This implies that the drug enters the cerebrospinal fluid in sufficient quantities or that a relatively small amount may be effective. Successful treatment of 2 cases of staphylococcal meningitis with sulfathiazole has recently been reported.^{5,6}

Sulfathiazole treatment of staphylococcal meningitis was begun at the Albany Hospital in January, 1940. Previously 1 patient had died with staphylococcal meningitis, failing to respond to sulfapyridine therapy. Sulfamethylthiazole was tried in the next case, with cure. Since then 4 patients have been treated with sulfathiazole with 1 death. In these cases an attempt was made to maintain the free sulfathiazole in the blood

at 4 to 5 mg per hundred cubic centimeters. Free sulfathiazole in the cerebrospinal fluid may reach 40 per cent of that in the blood. No values were obtained in the spinal fluid higher than 3 mg per hundred cubic centimeters. This level may be obtained by an initial oral dose of 4 Gm, followed by 4 Gm in four hours and 1 to 2 Gm every four hours thereafter.

The following case suggests that cerebral edema may be caused by drug toxicity. It also emphasizes the difficulty that may be encountered when treating meningitis in distinguishing between reactions due to progress of the disease and those due to chemotherapy.

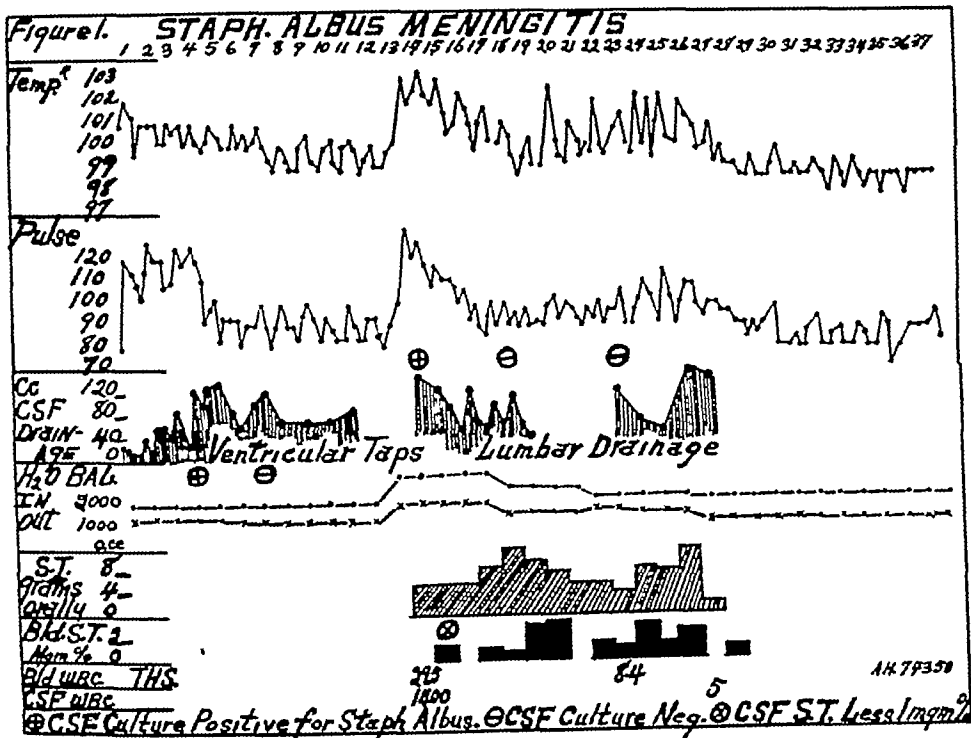
Case Report

Case 1—A white truck driver, aged 19, was admitted to the hospital complaining of progressive loss of vision and photophobia of three months' duration. A diagnosis of a right middle fossa neoplasm was made on the basis of choked disks, visual field changes, and x-ray findings. A right temporal craniotomy was performed, and a meningioma filling the right middle fossa was removed.

Within four hours postoperatively the patient was conscious and cooperative. Periods of restlessness, drowsiness, and increasing tension of the wound necessitated ventricular aspirations of cerebrospinal fluid three to four times a day for four days. Twenty to thirty cubic centimeters of blood-tinged fluid were removed at each puncture. One to two aspirations were necessary daily from the fifth to the eleventh postoperative days, with the removal of 80 to 140 cc of clear, xanthochromic fluid at each puncture. On the thirteenth postoperative day the patient complained of severe headache, and on the fourteenth day his temperature rose to 103.4 F and his pulse rose to 132. He became comatose and developed cervical rigidity. His wound was tense and nonpulsating. Lumbar puncture showed a pressure of 360 mm of water. The cerebrospinal fluid was opalescent and contained 1,400 white blood cells per cubic millimeter, 85 per cent of which were polymorphonuclear leukocytes. *Staphylococcus albus* was cultured from the fluid. The white blood cell count was 29,500. Sulfathiazole was started (for dosage see Fig 1). Within twenty-four hours the patient became mentally alert and his temperature was 100.8 F. The wound flap became soft and pulsated. However, periods of drowsiness necessitated lumbar punctures twice daily for five days. The sulfathiazole level of the spinal fluid was too

Read by invitation at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 29, 1941.

From the Departments of Neurosurgery and Medicine of the Albany Hospital and Albany Medical College. Resident in neurosurgery and resident in medicine, respectively.



low to read on the first day, and no further determinations were made. A stitch abscess was opened on the fifteenth day and was healed in three days, a culture from this was negative. Spinal fluid culture after five days of drug administration was negative. On the eighteenth postoperative day his drowsiness was unrelieved by lumbar punctures. At the same time there was a low blood level of sulfathiazole and a slight rise in temperature. On the basis of these observations the dosage of the sulfathiazole was increased. On the twentieth day the temperature rose to 102.6 F. Drug fever was considered and the dose was decreased, the patient became more alert. Cervical rigidity and drowsiness increased on the twenty-third day, and the wound again became tense. Lumbar puncture showed no cells, but the sulfathiazole was again increased. The patient became semicomatose and, when a nodular rash appeared, the drug was stopped. Soon thereafter he became alert, the wound was soft, the temperature was normal, and the neurologic examination was negative. The patient was discharged on the thirty-seventh postoperative day.

Streptococcus hemolyticus meningitis is usually secondary to middle ear, mastoid, or sinus infections. The mortality in this form of meningitis has been reported as about 98 per cent.⁷ Fatalities have been reduced to about 50 per cent since sulfanilamide has been employed.⁷ Reports indicate that some diffi-

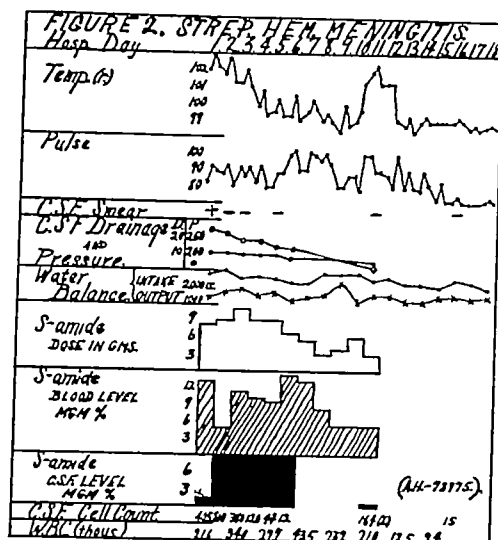
culty has been encountered in culturing the organism from the spinal fluid.⁸ The diagnosis often must be made solely by culture of the *Str. hemolyticus* from the primary focus and by the presence of gram-positive cocci in the spinal fluid.

At present, the consensus is that sulfanilamide is the drug of choice in the treatment of *Str. hemolyticus meningitis*. The free sulfanilamide blood level should be maintained between 10 and 15 mg per hundred cubic centimeters in order to produce an effective spinal fluid concentration of 8 to 10 mg per hundred cubic centimeters. Such levels may usually be obtained by an initial oral administration of 6 Gm. of sulfanilamide, followed by 1 to 1½ Gm every four hours.

Five patients with *Str. hemolyticus meningitis* have been treated with sulfanilamide at the Albany Hospital in the past eighteen months with 1 death. In this case the meningitis was complicated by the presence of *Bacillus proteus* in the middle ear and in the spinal fluid. The following is a report of a recovered case.

Case Report

Case 2—A white married housewife, aged 32, was admitted to the hospital in a semicomatose state of a three-day duration. The patient had been ex-



posed to scarlet fever three weeks previously. One week before admission she developed a fever, followed by a diffuse, erythematous rash. Five days before admission she complained of pain in the left ear, which drained spontaneously. Following this she grew worse. Her treatment at home had consisted of an unknown amount of sulfanilamide and antistreptococcus serum.

On admission her temperature was 103 F, pulse, 90, respirations, 20, and blood pressure, 120/55. An erythematous rash was present over the back and the shoulders. There was moderate tenderness over the left mastoid area. The left external auditory canal was filled with seropurulent discharge. Neurologic examination revealed marked cervical rigidity and definite right facial weakness of central type. The abdominal, knee, and ankle reflexes were absent, there were bilateral Kernig and Babinski signs. The hemoglobin was 75 per cent, and the blood leukocyte count was 21,600. A culture from the left ear disclosed *Str. hemolyticus*. On admission there was 14 mg per hundred cubic centimeters of free sulfanilamide in the blood. A lumbar puncture revealed an initial pressure of 270 mm of water, 405 polymorphonuclear leukocytes per cubic millimeter, and 18 mg per hundred cubic centimeters of free sulfanilamide. A smear of the spinal fluid revealed a few gram-positive cocci singly and in pairs. No growth was obtained on culture.

Shortly after admission a left simple mastoidectomy was performed, with drainage of an extradural abscess from which *Str. hemolyticus* was isolated. Sulfanilamide was administered through a duodenal tube every four hours (for dosage see Fig. 2). Lumbar punctures were performed daily, with the drainage of 10 to 20 cc each time. The patient slowly improved, and her temperature was normal on the seventh hospital day. Two days later, cervical rigidity was ab-

sent, but a left horizontal nystagmus, left Babinski sign, and clumsiness of the upper left extremity were noted. On the eleventh hospital day her temperature reached 102.4 F. There was no change in her neurologic examination. The fever was regarded as a sulfanilamide reaction, and the drug was discontinued. On the twelfth hospital day her temperature dropped to normal and remained there. The above neurologic signs, suggesting either a right frontal or a left cerebellar abscess, persisted. Since these signs slowly disappeared, they were regarded as evidence of a localized encephalitis rather than an indication of an abscess formation. A secondary closure of the mastoid wound was performed on the forty-second hospital day, and the patient's progress from then on was uneventful.

Pneumococcus meningitis is regarded as the most lethal form of pyogenic meningitis. Before the sulfonamide drugs were used the mortality was almost 100 per cent.⁹ Mortality rates from 50 to 85 per cent have been reported following the use of sulfapyridine.^{8,10,11,12} There is no doubt that sulfapyridine is the drug of choice in this form of meningitis. The concomitant use of type-specific antipneumococcus serum is advised.¹³ Its use should be restricted to the intravenous route. Intrathecal administration of serum is contraindicated because of the development of subarachnoidal block, abscess, and arachnoiditis, with its consequent intractable pain, or sudden death.¹²

Sulfapyridine is present in the cerebrospinal fluid shortly after appearing in the blood and attains a level of 60 to 70 per cent of that in the blood.⁹ A concentration of free sulfapyridine in the blood should be established at about 10 mg per hundred cubic centimeters in treating pneumococcus meningitis. This blood level may usually be maintained by 3 Gm of sulfapyridine as an initial oral dose, followed by another 3 Gm in four hours and the administration of 1 to 2 Gm every four hours thereafter.

In the past year 4 patients with pneumococcus meningitis have been treated at the Albany Hospital. Two patients with type III pneumococcus meningitis failed to survive, whereas two others (type VI and type XXXI) recovered. In addition to sulfapyridine, antipneumococcus serum was given to the patients with types III and XXXI. In the following case, type VI, serum was not administered.

Case Report

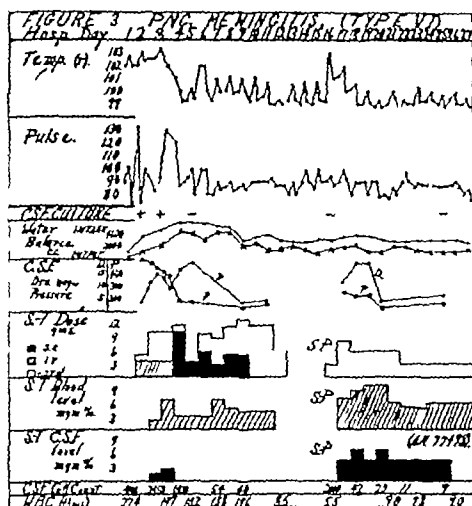
Case 3—A man aged 42 was admitted to the hospital thirty-four hours after an automobile

accident in which he had been knocked unconscious for one-half hour. He had sustained a scalp laceration in the right frontal area, which had been sutured, and a gauze wick inserted by a local physician. He was apparently well until twenty-eight hours after the accident, at which time he became restless and drowsy.

On admission he was semicomatose, and the laceration of the scalp showed evidence of acute inflammation and fluctuation. There was periorbital ecchymosis on the left. His temperature was 101.4 F, pulse, 90, respirations, 24, and blood pressure, 165/85. His neck was stiff and pain was elicited on flexion. The wick was removed from the laceration and a culture revealed *Staph aureus*.

The following day his temperature rose to 103 F. Lumbar puncture was performed because of increasing cervical rigidity. The initial pressure was 550 mm of water. There were 4,100 leukocytes per cubic millimeter, predominantly polymorphonuclears, and the smear showed a few gram-positive cocci in the cerebrospinal fluid. A diagnosis of *Staph aureus* meningitis, secondary to the infected laceration, was made. Intravenous, oral, and subcutaneous sulfathiazole was administered (for dosage see Fig. 3). Lumbar punctures were performed every eight to twelve hours, with removal of 10 to 20 cc of fluid each time. On the third hospital day the culture from the spinal fluid revealed *Pneumococcus* type VI. Sulfathiazole was continued because the patient was doing well and the meningeal signs had disappeared. His temperature was 99.5 F. An x-ray of his chest was negative. Sulfathiazole was continued for ten days, and at the end of this period the cell count of the spinal fluid was 40 per cubic millimeter. The patient was apparently making a satisfactory recovery except that his temperature continued around 100.8 F, so chemotherapy was discontinued. After four days without chemotherapy his temperature rose to 103 F. The spinal fluid showed 2,000 leukocytes, predominantly polymorphonuclears, although the culture remained negative. Sulfapyridine was now administered (for dosage, see Fig. 3). This type of therapy was continued for fifteen days, and the patient made a satisfactory recovery. An x-ray of the skull, taken before discharge, revealed no evidence of fracture. Type VI pneumococcus was isolated from the sputum, and a history was finally elicited of previous chronic sinus disease.

In retrospect, it appears probable that the meningitis arose from a fracture through a paranasal sinus rather than from the infected laceration. The presence of the left retrobulbar hemorrhage on admission indicated the possibility of such a fracture. The continuous fever after eleven days of drug therapy showed the existence of an incomplete cure rather than a drug reaction. The free sulfathiazole in the spinal fluid reached values of 40 per cent of that in the blood. This is higher than any previous reports save one.⁴



Meningococcus meningitis is regarded as the least serious of the various forms of purulent meningitis. The mortality in the endemic type is reported to be about 45 per cent with the use of the antimeningococcus serum.^{14,20} In meningococcus antitoxin therapy, it is reported to be about 23 per cent.¹⁴ In those cases treated with sulfanilamide alone or with additional serum or antitoxin the mortality ranges from 3 to 20 per cent.^{4,8} It is the consensus that sulfanilamide alone is equal, or superior, to either serum or antitoxin. Sulfanilamide alone may be even more effective than when combined with either serum or antitoxin.¹⁰ However, Hoyne, Long, and others feel that in critical cases the use of serum or antitoxin is probably desirable in conjunction with sulfanilamide.^{13,15} Serum should be given only by the intravenous route. Again, the contraindications to intrathecal injections of serum are the possible development of subarachnoid block, localized abscesses, and arachnoiditis with the consequent intractable pain or sudden death.

At the present time, sulfanilamide is the drug of choice in treating meningococcus meningitis, although the 21 per cent mortality reported by Banks⁴ deserves further investigation of sulfathiazole therapy. Between 10 and 15 mg per hundred cubic centimeters of free sulfanilamide should be maintained in the blood. This should produce a free sulfanilamide level between 8 and 10 mg per hundred cubic centimeters in the cerebrospinal fluid. Such a level may usually be maintained by an initial dose of 6 Gm of sulfanilamide, followed by 1 to 1½ Gm every four hours thereafter.

Only 5 cases of meningococcic meningitis have been treated at Albany Hospital in the past two years. Two patients died, 1 was complicated by the presence of lupus erythematosus disseminatus and the other by a brain abscess.

Discussion

The latest reports, particularly those emanating from England, indicate that after the first diagnostic puncture no further cerebrospinal fluid drainage is needed in chemotherapy of meningitis.^{4,10} The maintenance of cerebrospinal fluid drainage was apparently of definite therapeutic value in the cases treated at the Albany Hospital. This observation concurs with that of others.^{10,12,14} Carefully controlled cerebrospinal fluid drainage is a widely used method for combating cerebral edema. The method should have application in treating the cerebral edema of meningitis. It is believed by some that this procedure also removes inflammatory products in helpful quantities and that the re-establishment of normal blood and cerebrospinal fluid circulation is promoted. There is the possibility that the periodic removal of cerebrospinal fluid facilitates the transfer of the sulfonamides through the choroid plexus. The observed increase of the sulfonamides in the cerebrospinal fluid after drainage and the subsequent clinical improvement of some of the patients in this series suggest the value of maintaining a relatively normal level of intracranial pressure by lumbar punctures or wound tapings.

The established principle of surgical drainage of primary or secondary foci is imperative in the treatment of meningitis.¹⁵ Sulfonamide therapy is merely bacteriostatic, not bacteriocidal.

In certain cases of meningitis the comatose condition of the patient makes parenteral administration of one of the sulfonamide group desirable.^{17,21} Repeated intravenous use of these drugs is dangerous, and severe reactions may occur because of a sudden development of an excess in the blood.¹⁸ Death in 1 case reported in this series was apparently due to the repeated intravenous administration of sulfathiazole. At the Albany Hospital the subcutaneous route is used for the administration of a 0.8 per cent aqueous solution of sulfanilamide and a 0.5 per cent aqueous solution of sodium sulfathiazole or of sodium sulfapyridine. No local tissue reactions have been noted in over 250 injections in 50 patients. Following an initial dose of 100 cc of 5 per cent sodium sulfathiazole or sodium sulfa-

pyridine intravenously, an adequate blood level may be maintained by the subcutaneous claysis of 1,000 cc of 0.5 per cent sodium sulfathiazole or sodium sulfapyridine over a period of twelve hours. This rate of administration may be continued for several days. To prevent exacerbations and complications, the drug should be continued for at least two weeks after clinical improvement has been established. Objections to the intrathecal use of the sodium salts of the sulfonamides are the same as those for the intrathecal use of serums.

The toxic manifestations of sulfonamide drugs affecting the nervous system have been regarded as of minor importance.¹⁹ Nausea, vomiting, confusion, restlessness, dizziness, irritability, lassitude, hallucinations, and neuritis have been reported. In addition, we have seen 1 case of the Guillain-Barré type of polyneuritis following the use of sulfathiazole. The nervous system complications deserve more consideration in the treatment of meningitis than in other forms of infection. Apparently, cerebral symptoms due to increased intracranial pressure may result from the toxic reaction to the sulfonamide drugs. In over 20 patients under sulfonamide therapy, an increase in the cerebrospinal fluid pressure has been observed in association with drowsiness, confusion, and even coma. In these instances, when the drug had been discontinued and fluids had been forced intravenously, the cerebrospinal fluid pressure decreased and the mental symptoms disappeared in four to eight hours. Although difficult, it is essential to differentiate cerebral edema and the other neurologic manifestations from failure of therapy or the formation of a brain or spinal abscess. This is particularly true when a febrile reaction is present. The solution of the problem can only be made by frequent observations of the blood level of the drug, daily determinations of cerebrospinal fluid pressure and cytology, and repeated neurologic examinations.

Summary

1. An analysis of the data from 20 cases of pyogenic meningitis treated with the sulfonamides is presented. Thirteen recoveries and 7 deaths resulted.

2. Sulfathiazole is suggested as the drug of choice in treating staphylococcic meningitis, on the basis of 4 recoveries in 5 cases.

3. The value of cerebrospinal fluid drainage as part of the treatment of meningitis is stressed.

4. Successful subcutaneous administration

of a 0.5 per cent aqueous solution of sodium sulfathiazole or sodium sulfapyridine is noted

5 Cerebral edema and the Guillain-Barré type of polyneuritis are presented as possible toxic manifestations of the sulfonamide drugs

6 The differentiation between toxic neurologic manifestations due to the sulfonamides and failure of therapy is of major importance in treating meningitis

The grateful thanks of the authors are extended to Dr T J C von Storch for his valuable help and criticism

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Discussion

Dr Emanuel Appelbaum, *New York City*—It is a privilege to discuss this excellent paper by Drs Weary and Lyons

In an extensive experience over a period of many years, the Meningitis Division of the New York City Health Department has had a mortality rate of 18 to 25 per cent in meningococcal meningitis treated with serum. Except in the septicemic type of case we have used the serum intraspinally only. With the introduction of sulfonamides we have not given serum intravenously even to the septic cases. There can be no doubt that the sulfonamides are of great value in treating this form of meningitis. There have appeared several favorable reports on the use of sulfonamides alone in this disease. Indeed, in a small group of cases I have obtained excellent results from either sulfanilamide or sulfapyridine without the use of serum. However, the endemic form of the disease varies so greatly in

virulence that only an outbreak of epidemic proportions would make it possible to evaluate the question of sulfonamides alone versus the combined treatment with sulfonamides and serum. I should like to point out also that we have found sulfapyridine at least as effective as sulfanilamide in this disease.

In pneumococcal meningitis we have had a recovery rate of about 33 per cent with sulfapyridine and sodium sulfapyridine. The sulfapyridine was given orally and, in several instances, rectally in the form of an emulsion. One may obtain adequate blood and spinal fluid levels of the drug following rectal administration. The sodium sulfapyridine was given by vein in solutions varying from 0.8 to 5 per cent and was of particular value in the comatose cases. In many instances we have injected a 1 or 2 per cent solution of this compound intraspinally without any untoward reactions. In most of our cases specific serum was also injected intrathecally, usually combined with the sodium sulfapyridine. However, many of our recoveries followed the use of sulfapyridine alone. At present, we are trying to evaluate the respective merits of sulfapyridine alone and its combined treatment with serum. In some of our recent cases, when the patient failed to respond to sulfapyridine, we changed to sulfadiazine, often with excellent results. This new sulfonamide compound is unquestionably effective against the pneumococcus and other organisms and is probably the least toxic of all the sulfonamides. I am in full accord with Dr Weary and Dr Lyons in stressing the importance of changing sulfonamides when there is a failure of therapeutic response.

In meningitis due to the hemolytic streptococcus we have had 85 per cent recoveries following sulfonamide therapy. Most of our patients were treated with sulfanilamide, but a significant number of recoveries followed the use of neoprontosil or sulfapyridine. While it is probably desirable to obtain drug levels of 10 or more milligrams per hundred cubic centimeters in the blood and 6 or more milligrams in the spinal fluid, it should be noted, nevertheless, that there is no evidence of any correlation between drug level and recovery.

We have seen successful results in staphylococcal meningitis treated with sulfathiazole. However, it is my belief that sulfapyridine is the drug of choice in this disease, since sulfathiazole does not readily pass into the spinal fluid.

Since there has occurred in recent years a rise in the incidence of meningitis due to *Hemophilus influenzae*, it is important to comment briefly on the treatment of this disease. We have had about 50 per cent recoveries with sulfapyridine and sodium sulfapyridine. Many of the patients also received the specific horse serum intraspinally. However, a significant number of recoveries followed the use of sulfapyridine alone. Two patients who failed to improve with sulfapyridine responded promptly to sulfadiazine. Excellent

results have been claimed also for a special rabbit serum.

I am in complete agreement with Dr Weary and Dr Lyons with regard to the therapeutic value of spinal fluid drainage and the importance of eradicating foci of infection. In this connection it should be noted that a mastoiditis may not present clinical, or even x-ray, evidence of involvement.

With regard to drug fever, I have observed two types. One form of fever occurs relatively early in the course of the disease when, after a short period of obvious improvement, the temperature begins to rise in steplike fashion. More common is the delayed drug fever that occurs late in the course of treatment. It is at times difficult to decide whether the fever is due to the infection or to the drug.

Dr Weary and Dr Lyons have stressed the sulfonamide toxic manifestations affecting the nervous system. In addition to the reactions enumerated by them, we have seen also a number of patients who developed various psychoses. While these toxic reactions are not infrequent, as a rule they are not serious.

Dr H. van Zile Hyde, Albany, New York.—The present generation of younger doctors has become callous to miracles. Despite this fact, the presentation of 5 cases of staphylococcal meningitis with only 1 death is breathtaking. In recent years we have adjusted our thinking to accommodate the acceptance of recoveries in cases of hemolytic streptococcal meningitis, but we had come to think that the staphylococcus was, for the time being at least, unbeatable. We noted reports of recoveries by Dietel and Kaiser and by Sadusk and Nielsen but, in our thinking, catalogued them unfairly with the isolated reports of recoveries in all types of pyogenic meningitis which have occurred in the literature from time to time in the past, with recovery always attributed to some different and often bizarre method of treatment. When we consider the results obtained by Drs Weary and Lyons, reported here, and group these with cases we have seen or have been told about by our colleagues, we must accept the fact that staphylococcal meningitis is now one of those diseases that pose a real challenge to the physician, demanding his utmost attention to every detail of therapy.

Drs Weary and Lyons have added important factual material to one particular discussion of vital importance which has, heretofore, been centered chiefly around theoretic considerations. In balancing the relative bacteriostatic efficacy of sulfapyridine and sulfathiazole against the poorer penetration of the latter through the blood spinal fluid barrier, it has been more or less generally agreed that sulfapyridine was the drug of choice in staphylococcal and pneumococcal meningitis. Certainly, the evidence presented here, despite any theoretic considerations to the contrary, demonstrates that sulfathiazole is a remarkably

effective drug in at least the staphylococcal group. This is particularly encouraging because, from the standpoint of annoying toxic reactions, it is the more satisfactory drug to employ.

This paper is an important contribution to a field that has been one of the most discouraging in the practice of medicine. I am sure, however, that the authors would be the first to admit that it is not the last word. In sharp contrast to the history of arsenic agents in the treatment of syphilis, new and more effective sulfonamides are appearing at a rapid pace, tending to supplant their predecessors. The medical world now has its eyes focused on the possibilities of sulfadiazine. Reports are sparse as yet, but there is promising evidence of greatly lowered toxicity, better absorption, slower excretion, diminished acetylation, and increased bacteriostatic efficacy covering a wide range of bacteria. Preliminary evidence also indicates that it penetrates the blood spinal fluid barrier about as well as sulfapyridine. The evidence thus far is scant but indicates an even brighter future than is anticipated in this paper. It behooves us all to keep a close eye on the literature regarding sulfadiazine so that we may be prepared to employ it intelligently upon its release for general distribution.

Dr Weary and Dr Lyons are to be congratulated on the diligence with which they observed and treated their patients. To be noted particularly is their close attention to detail and their adaptability to the changing condition of the patient. The drug was carefully administered with constant observation of its effect in relation to toxic potentialities and the status of infection. Coupled with this was the courage to withdraw or readminister as the condition indicated. Blood levels, spinal fluid levels, fluid requirements, urinary findings, spinal fluid pressures and cytology, and localization of infection were all carefully watched and skillfully interpreted and handled. A successful outcome should not be attributed alone to the sulfonamides but must be attributed to the care and intelligence with which these drugs were administered. Pyogenic meningitis still requires skillful care—medical and surgical.

Dr George V. Taplin, Rochester, New York.—Drs Weary and Lyons are to be congratulated on their excellent paper. Their results are far superior to those obtained in Rochester, particularly in reference to pneumococcal meningitis. For the past two years I know of only 3 recoveries in 25 or 30 cases of pneumococcal meningitis. Two of these cases were secondary to mastoiditis, the third case was an infant with primary meningitis. The infant made a recovery following the use of sulfapyridine alone.

Inasmuch as nearly everyone has used the same therapeutic agents for these diseases, the results of Drs Weary and Lyons must in large part be attributed to the intelligent handling of their cases. I was particularly interested in the

use of the sodium salts of sulfapyridine and sulfathiazole by hypodermoclysis. It has not been appreciated generally that it is possible to use these drugs in this manner. In fact, the various drug houses warn against such a mode of administration, stating that serious local reactions may result. At Rochester we have used sodium salts of sulfapyridine, sulfathiazole, and sulfadiazine in this manner in over 150 cases and have not observed a single local reaction. We feel that the subcutaneous route of administration is preferable in most cases of meningitis where parenteral therapy is needed because a more constant, satisfactory blood concentration of these drugs may be attained. The blood concentration is maintained for longer periods of

time than with intravenous administration, and there is less danger from untoward renal reactions.

As a result of our preliminary experience with about 25 cases of pneumonia treated with sulfadiazine, we feel that this drug is likely to replace all the previously used sulfonamides, particularly in pneumococcic and staphylococcic infections.

Apparently, sulfadiazine is at least as effective for staphylococcic infections as sulfathiazole. However, in staphylococcic meningitis it should be superior because it penetrates the spinal fluid to a high degree. For the same reason, it should be superior to sulfapyridine in the treatment of pneumococcic meningitis.

GROWING DEMAND FOR INDUSTRIAL PHYSICIANS

"The demand for more and better trained medical personnel in war industries, under both governmental and private control, is steadily becoming more insistent," the *Journal of the American Medical Association* says in an editorial on "Availability of Trained Industrial Physicians," in its March 29 issue.

"The scarcity of competent industrial nurses, engineers and physicians accords with an early impression of the Committee on Medical Preparedness of the American Medical Association, one of the first resolutions of the committee called for prompt organization and adequate support of training facilities for physicians interested in this field."

"The present emergency will undoubtedly be sufficient inducement for many more physicians to undertake industrial medical service, especially those who have an interest in preventive medicine and a flair for administration. There are sound indications for believing that interest in industrial medicine and hygiene will not lapse as it did in the period following the last war. Opportunity for professional advancement, then, is most reassuring and need not be considered as limited to the period of the emergency. Certainly the obligation of medical educators to prepare the profession for greater and more competent participation in the maintenance of health in industry is much better recognized. At present, organized instruction is available in a few medical and professional

schools. Teaching facilities of the same type ought to be widespread and will be developed elsewhere without much difficulty as soon as financial support becomes available. The fundamentals of preventive industrial medicine and surgery can be supplied to a well qualified physician in three months' time, especially if a period of controlled experience in an acceptable industrial medical department can be added to this instruction. Since the medical requirements of industry are so varied, considerable adaptability in the content of the course and in field work is essential. Medical societies are also developing introductory and refresher courses as part of the program to integrate all industrial medical activity under the joint guidance of the committees on industrial health in the state medical societies and the bureaus of industrial hygiene in the state governments.

"The Subcommittee on Industrial Health and Medicine of the Federal Security Agency, acting as coordinator in this field, has developed a committee on Registration and Training of Medical Personnel for Service in Industry. During the early period of adjustment to emergency conditions, physicians who wish to apply for intensive training or for actual placement in industry are urged to register their names with the office of the Council on Industrial Health of the American Medical Association, 535 North Dearborn Street Chicago."

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Symposium on Health Education for Youth Organizations

A HEALTH PROGRAM FOR YOUTH ORGANIZATIONS

J G FRED HISS, M D , Syracuse, New York

TODAY practically all American youth organizations have health programs of various kinds. These vary from a few lessons in first aid to a fairly comprehensive program. Some of these consist of, or include, a physical examination or inspection before the member is allowed to participate in athletics or go to a summer camp. Forms for such examinations vary in size from a small card to several full-sized sheets of paper. In addition, practically every public school in the state has some kind of a periodic medical examination of all pupils. These examinations are more properly called medical inspections and serve the chief purpose of detecting communicable diseases. Comparatively few pupils ever receive a complete or adequate examination during their entire school career.

Nation-wide experiences with the Selective Service examinations of men between the ages of 21 and 36 have again confirmed what most investigators have long known—namely, that the incidence of preventable and correctable defects is high. The most frequent causes of rejection because of physical condition are defects of teeth, eyes, feet, ears and disturbances of height and weight. Because the findings are similar to those of the first World War Draft, one can probably assume that youth health programs are inadequate or involve too small a percentage of the total population. The large number of rejections has caused much comment in newspapers and periodicals. Several remedies for this state of affairs have been proposed including a congressional appropriation of \$150,000,000 for a nation-wide plan of physical education and training with the implication that such a program would be a powerful factor in improving the health of the nation. It would seem that this is an opportune time for the organized medical profession to study this problem and to aid in its solution.

It has been my privilege and pleasure to be associated with the New York State 4-H Clubs for several years. This state has 31,000

of the 1,400,000 4-H members in the entire United States. Most of the members are boys and girls between the ages of 10 and 21 residing on farms or in small rural communities. I feel that this organization has gradually evolved a commendable health program. It is largely because of this contact and its resulting experience that I am suggesting the following program for use by the various youth organizations of this state. Possibly it might be sounder to have the State Educational System follow such a health program, since it would then reach all the youth of the state rather than only the fraction that belongs to youth organizations. However, it seems infinitely easier to work out many of the various aspects of this problem on smaller and more compactly organized groups such as 4-H Clubs, Boy Scouts, Girl Scouts, and others.

Before proceeding with the plan let me say plainly that I am making no claim for originating any of the 4-H Health Program. Some of it—for example, the nutrition part—was not even planned by the medical profession but was developed by the Nutrition Department of Cornell University. Because of its excellence it is a pleasure to endorse it.

The proposed plan consists of three parts, partially overlapping: (I) Health Education, (II) Health Preservation, and (III) Health Restoration.

Under Health Education the plan calls for the dissemination of information dealing with all health aspects of life. The detail with which this is done naturally must vary with the age group under consideration, but in general the following subdivisions can be made.

Foremost, it seems essential to broadcast a great deal of general information about nutrition. The great use of the many recent discoveries in this field should be primarily for the prevention of illness and only secondarily by physicians for the cure of illness. It is becoming more and more apparent that the tremendous number of dental defects in the general population is due largely to faulty

nutrition Preventive dentistry is a subject really in its infancy Adequate nutrition is also the basis for good general health and a normal development of the body 4-H Club members already know many basic facts of nutrition because they have been forced to learn them in connection with the care of their livestock, and it is rather easy for them to see the rationale of applying these same factors to themselves

The second big subject under the heading of Health Education might be called Personal and Mental Hygiene These terms are self-explanatory

Thirdly, under Health Education, it is necessary to describe the ordinary communicable diseases in some detail This applies especially to the modes of transmission so that an enlightened public may aid local health officers in preventing and combating epidemics of various kinds Without such help public officials can accomplish little

Next, it is essential that considerable information concerning first aid be given to the general population, because it is practically always members of the laity who first see an injured or sick person Many lives are lost annually because of inadequate or improper first aid given by well-intentioned friends In connection with this subject it is necessary to give rather technical information in some fields—for example, persons injured in an automobile accident who cannot move their extremities should be left where they are because they may have a fractured spine or neck and, again, persons who have an abdominal pain should not be given cathartics because they may have appendicitis, etc There are many conditions in which it is impossible to reduce the death rate unless the public is told about these conditions and advised what to do and what not to do about them As examples of the successful dissemination of life-saving information, one might cite, first, the widespread knowledge regarding the care of fresh wounds and the prevention of their contamination and, second, the understanding of the procedure of artificial respiration

There are many other subjects that can be covered in a general health education program, I have mentioned only four of the most important

The second part of the program deals with Health Preservation and can be subdivided at once into general and specific measures Under general measures comes, first, the application of information gathered through the

health education program, such as using one's knowledge of nutrition and personal and mental hygiene

It is under the heading of personal hygiene that one should consider, among other things, good posture, systematic exercise, and both indoor and outdoor recreation. Important as these things are, they in themselves cannot constitute a complete health program

Application of the knowledge of communicable diseases should be used to provide a safe milk supply, a safe water supply, and the abatement of fly and other insect nuisances The knowledge of the common causes of accidents should be used to prevent them.

Under the group of specific measures for health preservation, two are generally advocated antismallpox vaccination and immunization against diphtheria Others, such as typhoid immunization, should be used when indicated or requested by local health officers

The third part of the program deals with Health Restoration or the detection and correction of defects To do this adequately calls for physical and dental examinations at least once a year This part of the program must be carried out in its entirety by physicians and dentists The ideal arrangement is to have such examinations carried out on a private patient-private physician basis. In this way the patient will be considered as an individual rather than merely a collection of organs with a serial number Such a program imposes a definite obligation on the part of the physician to render a good complete examination It also calls for some standardization of procedures At this point I should like to suggest that the *Manual for Physicians* published by the American Medical Association entitled "Periodic Health Examination" be used as a basis. If this is done, then an identical physical examination blank can be used by all comparable youth organizations and probably also by the state school system In this way multiple examinations can be avoided In this connection I should like to quote verbatim a sentence from the *Manual* as indicating a goal to which such a program should be directed

"The ideal conception of the periodic health examination is that it is done in the interest of the patient and that the records thereof remain in the confidential files of the personal physician, just as do the records of consultations with patients for purposes of diagnosis and treatment in illness."

Sometimes, especially at the beginning of this program of annual examinations, it may be advisable, as a temporary expedient only, for county societies to make such examinations on an organization basis. Such a project has just recently been carried out by the Delaware County Medical Society, and their results and experiences form the subject of the following papers in this symposium. It is probable that similar projects will be attempted in two additional counties this year. Quite naturally, all arrangements for these examinations should be made by the medical societies of the counties affected.

As an aid to this campaign of annual physical examinations of 4-H Club members, several educational features are planned and should be mentioned at this point. At the Annual Congress of about 1,500 members held in Ithaca during the first week in July, 1941, actual physical examination demonstrations, one for the boys and another for the girls, were given. It is felt that such demonstrations make the members more physical examination-minded and greatly increase the numbers who will request this service of their family physician. Also, by becoming familiar with the procedure, much of the nervousness and shyness attending the examination of

boys and girls for the first time should be eliminated. It was found that it was quite a surprise to some members to learn that they had to remove their clothing for the examination. "We never had to do this for a school examination" was a frequent comment. It was also planned to make either a moving picture film or a set of kodaslide of this same demonstration to be shown at various 4-H Club meetings throughout the state.

This entire plan can be a success only if the entire organized medical profession supports it. A strong plea is therefore made that each county medical society cooperate actively with the leaders of the various youth organizations in its area. In the sparsely settled counties the entire society can function in this capacity, while in the more populous counties a special committee appointed for this purpose might function more efficiently.

I suppose that it will be said that any comprehensive plan like this one will be accused of promoting self-medication and of making neurotics, but I am personally sure that if the doctors will aid and guide this plan in their own localities this risk will be entirely eliminated.

"Good national health is the most fundamental of all defense measures."

DEMONSTRATION OF A COUNTY 4-H CLUB HEALTH PROGRAM

EVELYN F H ROGERS, M D, Oneonta, New York

THAT 4-H Clubs are interested in the health of individual members to the extent of choosing the healthiest or most nearly perfect boy and girl in an annual contest is common knowledge. In recent years, however, prominence has been given to a more constructive health program, which seeks to promote a higher standard of health in each and every member by teaching him the basic elements of personal hygiene and good health. The demonstration to be discussed, as carried out in Delaware County in the fall of 1940, was precipitated partly by the national cry of "Better Health for Defense" and is a visible manifestation of such a trend. The program provided facilities so that every member in the clubs might receive a general physical and an orthopedic examination. Furthermore, the club leaders were to be included in an in-

tensive follow-up to stimulate interest in carrying out the ensuing recommendations.

The objective of the program was primarily educational in that it aimed to impress on these young people the value of such an examination carried out annually. Secondly, through the leaders' participation it was hoped that the ways and means might be unearthed to correct various defects previously unknown or neglected.

Considering it wise to proceed with caution in this more ambitious type of health program, the project was to be limited to the one county in the state until the end result might be determined by a series of re-examinations. This report, therefore, constitutes only an analysis of the primary examinations, sufficient time not having elapsed for their evaluation.

The project was endorsed by the state leader for 4-H Club work and the New York State Department of Health. Tentative plans were

outlined at a meeting of representatives of these organizations in April, 1940, which was also attended by a member of the Department of Education. At that time it was determined that the Orthopedic Division of the Health Department was willing to give each child an orthopedic examination and that through federal funds a small honorarium was available for the local physicians who were to be asked to examine the children. The county medical society agreed to cooperate, and 19 of its 30 members conducted the examinations.

Delaware County is a hilly rural area. The population, according to preliminary returns of the 1940 census, was 40,989, a decrease of 0.4 per cent from the 1930 census. The two largest villages are Walton and Sidney with populations between 3,000 and 4,000. Sidney is the seat of one of the major defense industries, the Scintilla Magneto Plant, but the chief industry of the county as a whole is dairying. The population is 95 per cent native white. The area in square miles is 1,449, there being, therefore, an average of 28 persons per square mile.

4-H Club work constitutes part of the extension program of all land grant colleges organized by the United States Department of Agriculture. It is a specialized educational enterprise for rural youth from 10 to 21, carried on in this state through Cornell University under the immediate supervision of a county club or extension agent. In 1940 Delaware County had the largest membership in the state, with 113 organized clubs and a total membership of 1,405, making an average of 13.6 members per club. Each club is under the guidance of a local voluntary leader and, since the number supervised by the leader is small, it seemed reasonable to expect comprehensive assistance in carrying to completion any follow-up that might prove necessary.

Arrangements were made by the county club agent to conduct the examinations in suitable centers which, for the most part, were centralized schools. Necessary supplies and transportation were provided by the county clubs. Nursing assistance at examining centers was given by the school and public health nurses in the county. Physicians were assigned by the county medical society according to the number required for any one session. A member of the staff of the Orthopedic Division of the New York State Health Department was present at most of the sessions.

A comparatively simple record form was devised for use. The identifying data, his-

tory, weight, height, temperature, and pulse were obtained and recorded by the nurse. She also obtained audiometer readings and refractive errors from the school examinations if such were available. Otherwise, she checked the hearing with a watch and the eyes by a Snellen chart. The children were suitably dressed to facilitate an adequate examination.

The general physical examination of the 1,047 club members examined in the twenty-two centers was accomplished in twenty-three days. From 1 to 4 doctors were present at one period, the total number of physician sessions being 97, making an average of 10.7 patients examined per doctor per session. Each session was from two and one-half to three hours long, so that the doctor spent about fifteen minutes on each patient. On an average, 33 patients per session were checked by the orthopedic surgeon.

Out of the total club enrollment of 1,405 members, 1,072 or 76.3 per cent were examined. A general physical examination was received by 1,047, or 74.5 per cent of the group, 10 of these being done privately by the family physician. Orthopedic examinations were made on 1,028, or 73 per cent of the children, while 1,003, or 71 per cent, received both types.

Of the total number of individuals examined, 71.4 per cent were from 10 to 14 years of age, 19.5 per cent were in the age group from 15 to 19, while only 8 per cent were in the 5 to 9 group, and 1.1 per cent were over 20.

Of the group 41.6 per cent were boys and 58.4 per cent were girls. The preponderance of girls is constant throughout the specific age groups. Only 2 of the group were colored.

Based on the population of Delaware County in 1940, estimated for specific age groups and excluding the 32 living outside the county, it was found that in the 10 to 14 age group 21.9 per cent of the estimated Delaware County population for 1940 were examined. Although these children came from the more rural areas, the county is so predominantly rural that this number may be considered a fair sample in this age group for the county as a whole. Only 2.7 per cent of the estimated population in the 5 to 9 group and 5.7 per cent in the 15 to 19 group were examined, the number over 20 being negligible.

HISTORIES

In obtaining the family history particular note was made of familial contact with tuberculosis. Only 41 such instances were found. Of this group, 16 had been x-rayed and were

PERCENTAGE OF 1047 4-H CLUB MEMBERS
REPORTING HISTORY OF RECEIVING IMMUNIZING AGENT AGAINST
SMALLPOX, DIPHTHERIA AND TYPHOID FEVER

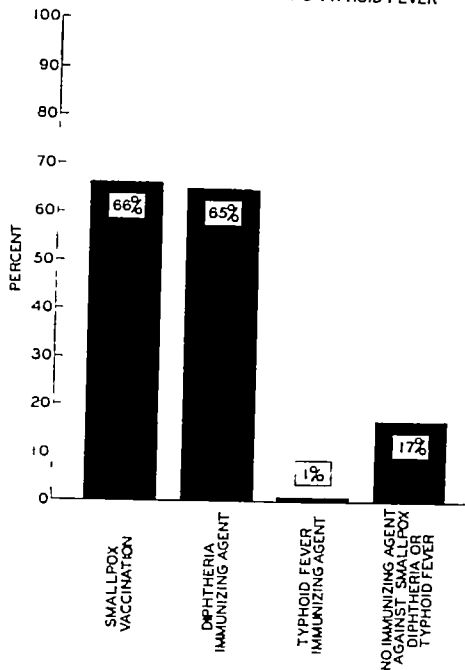


FIG 1

found to be negative, while 25 had not been followed up. There were 12 children who gave a history of a cervical adenitis that had required incision and drainage, 2 of whom were known to have had a negative x-ray. The remaining 10 in the latter group, together with the 25 in the former, making a total of 35 individuals, appeared to be the only ones in whom one might search for tuberculosis as far as the history was concerned. Only 1 child gave a past history of healed childhood type tuberculosis. The percentage of those having had measles, whooping cough, chicken pox, and mumps increased as one would expect in the older age groups.

Further histories of illness, other than operations, were not remarkable. The most common ailment, reported by 17.2 per cent, was a frequent sore throat, the individual's standard of what constituted frequency being accepted. A history of pneumonia was given by 9.3 per cent, of otitis media by 8.9 per cent, while 2.8 per cent gave a history of what might be considered a rheumatic syndrome—namely, joint pains or rheumatism, rheumatic fever, and chorea. A past history of heart disease was obtained from 5, or 0.5 per cent.

A tonsillectomy had been performed on 26 per cent of the group, this being the most

common surgery reported. This number contrasts sharply with a sampling of 1,000 11-year-old children in New York City schools, carried out by the American Child Health Association,¹ in which instance 61 per cent had had a tonsillectomy.

A history of having been vaccinated for smallpox was given by 66 per cent of the group, and 65 per cent reported having received an immunizing agent against diphtheria (Fig 1). The number claiming past immunization for typhoid, amounting to 0.8 per cent, was naturally small. No form of artificial immunization had been received by 16.8 per cent.

A dietary history was obtained primarily for educational purposes. Without a detailed quantitative and qualitative analysis over a period of time it is impossible to derive any conclusions as to the adequacy of the daily intake of food. From the data on hand, however, it was possible to ascertain those who received daily less than 1 pint of milk, 1 fruit and 1 vegetable, in addition to potato, and an egg or some meat. The 35 per cent falling in this category may be classed as having an inadequate diet. Moreover, a number of these, amounting to 10 per cent of the study group, reported drinking no milk. That this estimate of the dietary status is not grossly in error is strengthened by two facts: first, that 72 per cent of the individuals noted by the examining physician as having good nutrition received a diet containing at least the daily intake mentioned, while only 27 per cent of those on the inadequate diet were so classified. Second, only 38 per cent of those receiving this diet or better required dental care, while 52.3 per cent of those on the inadequate diet required care.

Physical Examinations

Recent studies such as that by Souther, Eliot, and Jenks² have shown the inconsistencies inherent in using any of the various indices of nutrition. For this reason the decision in regard to nutrition was left entirely up to the examining physician. In the opinion of these physicians 54 members, or 5.2 per cent of the 1,047 receiving a physical examination, were malnourished.

Of 1,006 individuals whose eyes were examined for limitation of vision, 346, or 34.4 per cent, were not normal. Of this number, 97, or 28 per cent, wore glasses. One hundred and four children, or 11 per cent of the total group, showed an error of 20/50 or worse, and 55 of these, or 53 per cent, wore glasses.

latter findings are in substantial agreement with those obtained by the American Child Health Association¹ in sampling 5,000 New York City fifth and sixth grade school children, in which instance 14 per cent had a visual defect of 20/30 or worse, one-half of whom were wearing glasses

Of those who were wearing glasses in the 4-H group, about one-third were corrected to 20/20. Assuming that until proved otherwise vision is correctable to 20/20, it was found, on adding the 59 whose glasses did not correct the error to the 249 who wore no glasses but showed a refractive error, that those needing further care amounted to 308, or 30.8 per cent of the study group

Upon otoscopic examination, 15, or 1.4 per cent, were found to have a chronic otitis media. According to the school records, 26 per cent of the group had been given an audiometer test by the group method within a year. Acuity of hearing in the remainder was checked with a watch heard normally at a distance of 20 inches from either ear. Included as having a limitation of hearing are those with a loss of 6 decibels in either ear, as well as those unable to hear the watch at less than 20 inches. By these combined methods 14.8 per cent appeared to have some impaired hearing. It is not felt that such results are accurate, because, undoubtedly, many of these would be found to have normal hearing if retested individually with an audiometer.

From the data on hand it was not possible to determine those who had received past dental care. However, the examining physicians noted that 43 per cent of those examined required dental care.

Findings on examining the tonsils indicated that in addition to the 26 per cent who had had a tonsillectomy 22 per cent had pathologically enlarged tonsils. Realizing that in such instances repeated examinations should be the dominant factor in advising a tonsillectomy, the only recommendation made was that the patient consult his family doctor regarding the desirability of this procedure.

No cases of congenital heart disease were diagnosed, while 6, amounting to 0.6 per cent of the group, were classified by the examining physician as having definite valvular disease. The latter figure is comparable to the 0.5 per cent of acquired heart disease found to exist in Philadelphia school children in a study by Cahan² made in 1934 to 1936.

In looking over the records it was found that in an appreciable number of instances abnor-

mal findings referable to the heart were noted in which the physician did not offer any diagnosis to amplify his clinical signs. About one-half were referred to the family physician for further study, but since the others were not mentioned in the summary, the physician apparently attached little importance to his findings. A search for other than rheumatic etiology revealed that 4 of this group, 1 of whom also had rheumatic fever, gave a history of having had scarlet fever. Upon further investigation, the majority in this undetermined group would probably be found to have no organic heart disease.

Brief mention of the results of the blood pressure determinations on 733 individuals in the 10 to 14 age group may be of academic interest. Of this number, 59 per cent gave a systolic reading of from 100 to 119, and 77 per cent of them gave a diastolic reading of from 60 to 79. In the other age groups the numbers were too small to derive any conclusions.

Examination of the lungs revealed that 8, or 0.8 per cent, had an acute bronchitis at that time, 1 had asthma, while, in 7, certain abnormal findings were present which indicated the necessity of further study with, possibly, an x-ray.

A genital examination was not done in the girls, but 391, or 91 per cent of the 471 boys, were examined. Of the latter, 4 had an indirect inguinal hernia, a rate of 1.2 per cent for those examined. In addition, 11, or 2.8 per cent, had a unilateral or bilateral undescended testicle, while 41, or 10.5 per cent of those examined, were said to have phimosis. One case of hypospadias was found.

Orthopedic Examination

Abnormalities as found by the Division of Orthopedics were placed in two classes: first, those who were considered as having true orthopedic problems and who were referred to an orthopedist for further care and, second, those who showed moderate and severe foot and postural deviations but who presented no subjective symptoms.

In the first group of 86 individuals are included those foot problems with pain, in addition to those with any other clinically positive sign, such as irritation of bony areas, hammer toes, etc. There were 19 children referred for painful flat feet, 14 for a scoliosis, 9 for short lower extremities, and 4 for an epiphysitis of the spine. Two of the number showed rachitic deformities, and the same number had a wry neck and arthritis, respectively. One indi-

TABLE 1—NUMBER AND PERCENTAGE OF INDIVIDUALS AMONG 1 047 4-H CLUB MEMBERS RECEIVING PHYSICAL EXAMINATION HAVING DEFECTS BY TYPE OF DEFECT

Defect	Total Examined	Number	Percent- age of Total
		1 047	100 0
Orthopedic		757	73 8 ¹
Foot and posture deviations		671	65 3 ¹
Orthopedic cases		86	8 4 ¹
Teeth		453	43 3
Eye			
Limitation of vision		346	34 4 ²
Total number needing care		308	30 8 ²
Enlarged tonsils		240	23 9
Ear			
Limitation of hearing		154	14 7
Otitis media		15	1 4
Malnutrition		54	5 2
Heart		50	4 8
Cardiovascular disease		7	0 7
Undetermined		43	4 1
Slight or moderately enlarged thyroid		38	3 6
Endocrine imbalance		4	0 4
Phimos		41	10 5 ³
Indirect inguinal hernia		4	1 2 ³
Undescended testicle		11	2 8 ³
Hypospadia		1	0 3 ³
Lung			
Undetermined		7	0 7
Asthma		1	0 1

¹ Based on 1 028 members receiving orthopedic examination.

² Based on 1 006 members receiving eye examination

³ Based on 391 boys examined for such

Cost of Demonstration

An effort was made to estimate the cost of this demonstration, which was borne by the cooperating agencies. Included is the honorarium paid the examining physicians, time spent by the personnel of the State Health Department in the actual examinations, nurses' time, 4-H Club agent's and assistant's time, clerical work, supplies, and cost of incidental travel, which total amounted to \$2,646. This was approximately \$2 50 per examination.

Discussion

To evaluate this demonstration at the present time is an impossibility. One cannot doubt the educational value of a properly conducted physical examination. However, the end result can only be measured by the benefits incurred through meticulously carrying out any recommendations made. An effort will be made in the spring of 1942 to determine whether or not sufficient interest was aroused to make the procedure worthwhile.

Summary

A demonstration health program in the 4-H Clubs of Delaware County was begun in 1940 by examining the members, an analysis of the findings being presented.

Those in the 10 to 14 age group constituted a fair sample of that group in the county.

Dental care was needed by 43 per cent of those examined.

The diet was inadequate in 35 per cent of the group and 10 per cent drank no milk.

Correction for visual errors was needed by 30 8 per cent of the group.

Pathologically enlarged tonsils were present in 22 9 per cent.

About 14 7 per cent had some loss of hearing and 1 4 per cent had a chronic otitis media.

An orthopedic problem was presented by 8 4 per cent, and 65 per cent showed foot and posture deviations.

Definite malnourishment was said to be present in 5 2 per cent.

Acquired heart disease was present in 0 7 per cent.

Only 5 4 per cent of the group were classed as having no defects.

. . . .

Grateful acknowledgment is given to Dr T J O'Donnell, Division of Orthopedics, New York State Department of Health, for analyzing the orthopedic findings and to Miss Margaret Graff, Statistician, Division of Local

vidual was diagnosed as having Osgood Schlatter's disease, 1 showed an internal derangement of the knee joint, and 1 showed a hallus valgus.

Falling in the second classification are 671 individuals who showed moderate and extreme foot and posture deviations. Although it was felt that all of the 1,028 youths examined might profit by posture training, this group in particular would be benefited by properly supervised corrective exercises. Individual recommendations were made in each instance when Thomas heels or lifts on the shoes were thought advisable.

Table 1 is a summary table showing the various abnormalities noted. Not mentioned previously are included 38 with slight or moderately enlarged thyroids and 4 persons who showed evidence of an endocrine disturbance. Counting only the defects shown and excluding the incidental acute conditions picked up, it was found that only 57 individuals, or 5 4 per cent of those receiving a physical examination, were considered normal. An additional 144 had only some orthopedic defect, so that had the group not been examined by an orthopedist 19 per cent would have been considered in good health.

In many instances it was impossible to make a definite diagnosis on the single examination. No doubt many of the suspected abnormalities will subsequently be ruled out by the family physician.

Health Administration, New York State Department of Health, for compiling the data

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THE PHYSICIAN'S ROLE IN A COUNTY 4-H HEALTH PROJECT

THOMAS C. MONACO, M D, Walton, New York

PREVENTIVE medicine has always been accorded a deservedly high position in the medical Utopia toward which we continuously grasp, even though we never quite reach it. Recently, however, the importance of prophylaxis in disease has been more forcibly emphasized by certain events and by certain facts. The events, of course, are those of the present worldwide upheaval which have caused us to take stock not only of machines and raw materials but also of the tangible asset of national health. The facts that have aided in bringing both lay and medical attention to the importance of prophylaxis are those gained in the fight against tuberculosis, cancer, diabetes, and other less publicized diseases. All of us seem more or less agreed now that public health measures may eradicate an infectious disease like tuberculosis long before a specific remedy is discovered. Then, too, advertisements of the insurance and drug houses in nationally distributed periodicals have long stressed the advisability of annual examinations as a routine health measure.

In line with these tendencies, the Delaware County Medical Society voted last fall to undertake the examinations of the 4-H children who signed up under the health project that Dr Rogers has so well described. A committee was appointed which assigned the physicians who volunteered to localities other than their own local communities. The committee decided that it was advantageous for a doctor to examine a child he had never seen before if possible, since this would tend to liven his interest in the examination. It was reasoned that an examination by another than the child's usual physician ought to be more objective and impersonal.

After the project was completed, certain questions arose in the minds of the examining physicians. First was the time taken in each examination enough to complete a satisfactory

physical examination? It is true that the average number of children examined was 10.7 per doctor per three-hour session. But actually the working time per session was only two and one-half hours or less, and the number to be examined was often as many as 18. This made the actual examining time as little as seven minutes in some instances although as much as twelve minutes in others. With doctors as far as fifteen to eighteen miles away from the examining center, it was difficult to correct immediately a situation where there were too many examinees. On one afternoon, for this reason, 1 doctor examined 39 children in five and one-half hours. This was exceptional, of course, but stressed the importance of knowing nearly exactly the number to be examined. The consensus, however, was that even eight minutes permitted a fairly careful checkup of the child's condition if he had been stripped and weighed and had had his history, visual, and hearing defects already noted.

Second, we asked ourselves whether the information derived was worth the expenditure of time of the doctors, health officers, nurses, and clerical staff, as well as actual outlay of federal funds and materials. Dr Rogers has mentioned \$2.50 as an estimate of the cost of each examination, and in reviewing her figures I certainly feel that this was a conservative rather than a generous estimate. In general, however, we agreed that the facts uncovered about these children were well worth the price paid, assuming that these defects had not been already noted in their school examinations. We felt that the examinees were an excellent cross section of all the children in Delaware County and that they could be leaders in other health projects. If the defects were followed up and corrected, there could be an incalculable saving by correcting as youths the physical faults that in later years would cause an expenditure of time and money, as well as a waste of the invaluable community resource of health and well-being.

Third, in answer to the implied question just mentioned, we wanted to know if data over and above those already amassed in the school examinations were found or whether we were simply repeating a job unnecessarily. Remembering that in nearly all instances the visual and hearing tests and the height and weight measurements were taken from school records or else checked by the nurses present and also noting that the teeth had been just as carefully checked, if not more so, by dental hygienists or school physicians, it was decided that nothing at all had been added to the group of defects which, together, comprised a total greater than the orthopedic faults that headed the list. In the latter instance none of the school doctors pretended to have either the specialized knowledge or the time to complete as excellent an orthopedic examination as the state orthopedists made. The state orthopedists acknowledge too that a great number of the foot and posture deviations are borderline cases requiring little or no care and that the true orthopedic deficiencies lay in the smaller number of 86, or 8.3 per cent of the 1,026 receiving such examinations. We decided, therefore, that the advantage of such a project as this, would have to rest in the follow-up. With the interest of the children aroused because of the competitive nature of the project and with 4-H leaders and parents alike knowing and checking the aftercare, there should be a greater percentage of corrections than would follow simple compulsory school examinations. It is still too early, of course, to answer that question. The children are supposed to be re-examined in one year and improvements are to be noted. In passing, however, most of the physicians seem to have had my experience with the follow-up to date—namely, out of 35 examinations reported of which 26 required treatment, just 7 children or parents have been in to discuss the reports, and only 3 have completely followed the advice offered. Perhaps our Utopia will always thus elude us.

It is impossible to close without alluding as Dr. Hiss has, to some of the similarities between the list of defects in this project and the

lists for the Selective Service Act rejects. Of course, the percentages rejected for each defect are lower, since the Army will take a certain minimum deficiency in its soldiers and we tried to allow none in the 4-H children, but there was a lesson to be learned nonetheless. Of 6,743 men examined in the second corps area from June through August, 1940, 2,195 were rejected, of which 23 per cent were for teeth, 21 per cent for eyes, 15 per cent for height and weight abnormalities, and 10 per cent each for ear and feet defects. In the last World War orthopedic faults led the list, with visual, cardiovascular-renal, dental, and underweight deficiencies close behind. It was obvious after studying the reports that the only way to have a healthier adult is to find and correct the physical failings of the boy and girl of the age group examined in this project. While that statement seems true or at least undeniable, it is amazing how little is done about it. Any physician examining draftees today is impressed by the number of remediable faults that cause rejection.

Summary

Studying the results of this 4-H health project from the physician's point of view, the following conclusions seem tenable:

1. In examining large numbers, proper preparation of the subject is essential. If ordinary measurements are taken, as well as a good history, and if visual and hearing tests are made (preferably with an audiometer), the rest of the physical examination can be completed in ten to twelve minutes.

2. The information derived was important and worthwhile, but not worth \$2.50, since the examinations were a repetition of the school examination with the exception of the orthopedic.

3. If the school examinations were properly followed up by parents and school nurses there would be more than enough opportunity for correction without additional fact-finding. In addition, if school examinations were made more complete, with perhaps an annual check-up by an orthopedist, a project such as this would be redundant.

AN OVERDOSE

Steinmetz, of General Electric fame, defined a highbrow as "any person educated beyond his intelligence."

CAN'T COIN SOFT SAWDER

If kind words paid bills, about the most prosperous of all citizens would be the general practitioner of medicine.

—*New York Sun*

MEDICAL PRACTICE FOR BODY AND MIND

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IT MAY be summarily stated that, historically, this subject is as old as the problem of matter and of mind, and it may be considered as one aspect of that controversy. My immediate inspiration was one of my medical school teachers, Dr Elmer Ernest Southard, Bullard professor of neuropathology at Harvard Medical School and for many years pathologist to the then "State Board of Sanitary" of the Commonwealth of Massachusetts. I recommend to you his biography not only for your own perusal but for your families' with special reference to any serious-minded youngsters of high-school age. It is called *The Open Mind** and was written by Dr F P Gay, late professor of bacteriology at Columbia Medical School.

I have been privileged in the more than twenty-five years since my graduation from medical school to elaborate on one aspect of the many projects outlined in their most general terms by Dr Southard.

Plunging at once into the midst of things it may be convenient to compare the situation of the individual person to the surrounding and state of a tree. Realizing that the analogy is incomplete and that it will break down if pushed too closely into detail, let us assume categorically that the branches may roughly represent the main divisions of his social activities, that the secondary branches and twigs may represent the subdivisions of these social activities, and that the foliage—blossoms, leaves, and/or fruit—may represent the words (written or spoken) and the gestures by which social communication and contact are made possible.

Again speaking in metaphor and only by analogy, the trunk of the tree is the structure or organ in which courses the fluids, the processes of the flow of which may be likened to the flow of the mental processes. This similarity, which seems so tenuous particularly at this point where "mind" is concerned, becomes strikingly clear and convincing when one realizes that the search for the "mind" on the somatic level, as revealed by recent electroencephalographic studies,* shows only elec-

trical waves of varying amplitudes and frequencies. These may be likened to the fluids in the trunk of the tree, the flow of these fluids which is "function" then represents the "flow of the mind" which is "structure". Whether the trunk of the tree which is "structure" is the brain of the man which is structure. Whether the listener acknowledges or accepts the analogy is an incident of little if any moment but the speaker would request that the audience keep in memory the essential distinction of importance, namely, that made between "structure" and "function".

Pressing once more to the analogy, the main roots and rootlets, together with the root mass in complex profusion, correspond to the bodily organs, to their subdivisions and fine cellular structure, while the physico-chemical processes that take place there have an analogic counterpart metaphorically in the biochemical processes of bodily organs. These biochemical processes are rapidly and extensively being incorporated with the great treasures of chemistry and physics collectively known as physical chemistry with its subdivisions of structures and processes or functions.

As an oak tree grows from an acorn and not from a beechnut so, in general, among humans and animals the laws of heredity are controlling. Though we realize that cross-fertilization is possible in all branches of the great human family, we have not yet determined which hybrids are potentially valuable and which are worthless. All we know now in this particular is that certain hybrids are repulsive to persons of finer sensibilities and keener understanding. This paragraph makes no claim to completeness on the great and important matter of heredity, but it is all that can be said here.

Just as foliage—blossom, fruit, or leaf—of one tree does not affect foliage of another directly but only through some medium, such as air or the ground upon which it falls, and decays into its chemical constituents, so also words (written or spoken) and gestures do not affect the mind of another directly—"telepathically"—but only by the medium of the air and of the "ether". The former is well known but the latter is still only a construction of physicists, tentatively set up to explain certain phenomena and never yet

Presented at the Lions' Club of Ossining New York on January 23 1940
From the Institute for Social Adjustment 275 Spring Street Ossining.
* Items noted with an asterisk denote a literature too large to set down in this brief article

quite entirely satisfying to all the conditions known or surmised from experiment. In terms of physiology the former is well known as "hearing," and the latter is still being studied as "vision."

Sound and light, the first in the form of the spoken word and the second as written words and gestures, are taken up through the bodily organs with particular reference to the end-organs and nerves—the ear and the eighth nerve for sound, the eye and the second nerve for light.

That the constituents of the fluids in the tree arise not only from the rot of the leaf and the fruit but also from the other components of the soil in which the roots are embedded is a matter of such general and common knowledge that no elaboration appears to be needed. It is, perhaps not so clearly evident to the layman of nonphilosophic training that in him also it is not only what he sees and hears that affects all his functionings called "mental" but that it is also all the other constituents of his milieu, environment, or surroundings which improve or impede the power and the force and complexity of the mental functionings of which he is capable.

The point will be accepted at once when I say that in the clear, cool atmosphere of the mountain one's faculties are refreshed and invigorated, while in the smoke of the slum of the city the deadly carbon monoxide does not help, assist, or favor any mental or bodily function. It is not necessary to go into detail about anesthetics, soporifics, somnifacients, or narcotics to convince men of average intelligence that substances taken by ingestion (which is gastrointestinal) or by inhalation (which is pulmonary) may also affect the functionings called "mind" from the slightest perceptible traces to the depths of the most complete abolition. On the other side of the picture are the stimulating effects of the caffeine in a good aromatic-like coffee. The assumed similar effects of alcoholic beverage are not what is popularly imagined but are really due to the depression effected upon the inhibiting centers of higher intelligence, thus releasing those more spontaneous functions of emotional and personality responses which lend themselves so delightfully and charmingly to party conviviality except when it sometimes happens that others of more animal nature chance to be in attendance at such places and are unable in the words of the Southland "to carry their liquor like gentlemen."

However, it should be stated at once,

without quibbling, that "somatopsychic medicine" is not concerned with such comparatively easy problems. In fact, it may be stated promptly that present-day "body-mind medicine" could not exist as a practice if it were not for the advances of science in the fields of immunochemistry* and in the chemistry of glands* and nutrition* with special reference to the processes of oxidation,* reduction,* and deamination* and if it were not for the parts played by enzymes* and electrolytes* in the intimate chemical exchanges that subserve those functionings called "mind."

I regret that I can only mention these matters, but I hope that they will arouse curiosity which may lead to an earnest and desirable interest. I must proceed to a related matter which may prove to be of utmost importance in the brief space of scientific advancement which is infinitely brief in comparison with the millenniums about which the geologists tell us but which seems long and roundabout, if not tedious, when measured in the more finite figures which apply to the lifetime wherever the individual is considered.

We now have evidence before us the interpretation of which is still in the balance. It is known that in many diseases a trace is left after the illness is over. This remainder is perhaps like a "hang-over", in technical terms it may be a "residual." While its intimate nature is still undetermined, it is a matter of widespread knowledge that diseases like syphilis, scarlet fever, and diphtheria, as well as tuberculosis, pneumonia, and brucellosis, leave a trace which is detectable by methods well known to competent pathologists as well as to many practitioners.

These serologic* and skin tests* have raised another and more momentous inquiry as to whether other diseases, not syphilis, may also run a course in three stages. Even the positive Wassermann gives no direct or conclusive evidence as to the presence or absence of continued treponemal invasion. So, also, a positive skin test, for example in undulant fever,* neither proves nor denies that the etiologic agent is still present or absent completely. While this question remains to be answered in these and still others where posited, there are a number of important diseases where the question has not yet even been raised. Among these are the common diseases of childhood together with gastrointestinal and infections of the upper part of the respiratory tract. Under the terms of this theory, each case of these common ail-

ments should be considered by every practitioner as a possible cause for further concern at some future undetermined date. It is for this reason and others that a routine physical checkup should be made at least once or twice yearly, with the possibility in the mind of the doctor that he may be on the path of discovery of complications or of sequelae of a previously neglected condition. It is here that the close observation of the keen and observant physician may solve the enigma quite early and thus save the full-blown catastrophe. However, in my opinion, it is not enough to be an observer, in order to do the job properly, resort should be had to the laboratory. If the overhead looks expensive and heavy, then arrangement should be made by some other method, but the scientific aid of the laboratory should in no case be slighted or neglected. No organ or system of "soma" is of such insignificant value that it may not yield information of vital and crucial importance for the healthy functionings called "psyche." In fact, it may be stated dogmatically that, at times, it is not character or temperament or any of the other intangibles that go to make up the "psyche" but some common somatic organ that needs treatment and careful attention. It would seem as though each organ in "soma" may be, in its disorder or illness, a possible and unerring indicator of the nature of the etiologic agent. Thus, for example, it appears² that a substance may be released in some instances by the action of some childhood infection, that this substance may then form a union with a fraction of the invading bacterium, and that, finally, this newly formed compound may damage not only the organ of its primary origin but also some other more distant related structure, the connection possibly being some microscopically similar unit perhaps in the supporting framework of otherwise dissimilar organs. Thus, a study of kidney damage with a history of scarlatinal infection may contain the key situation to another injured focus, perhaps in some cases the brain. The possibilities of this new and striking discovery are so many, so broad, and so inviting that, in the words of another investigator, the outlook is "fairly bewildering."

My early studies³ and studies of others have shown fairly succinctly and clearly that the mental symptoms of illness also follow a definite pattern, that first there are signs of the stimulus that comes with the primary invasion, that later these acute signs fade out more or less in their action, and that, finally,

with long continuation of the disease that produces the picture, the mental symptoms themselves also wane to a level of demented nonreaction.

Further study with our childhood diseases has yielded the most fascinating conclusion⁴—namely, that not only stupidity but even precocity itself and sometimes brilliance is not only not to be viewed with self-satisfaction but is rather to be carefully followed to determine how far it is normal and how far it is the result of some illness.

Carrying over a similar notion into the field of delinquency and crime, I⁴ have found that the incipency of juvenile and of adult criminality may frequently be traced, without effort, to the onset of some childhood infection. Confirmation of this observation is open to any well-trained pathologist who will take the necessary trouble and time to make the needed examinations and studies. The bodies of electrocuted criminals,⁴ whether aged, middle-aged, or young, will reveal evidences of damage and of retardation which have no relation to electrical current. Thus, the fixation of somatic development at a stage that would be normal in a younger person closely parallels what we know of the "psyche" of the young criminal or the old recidivist. Their intelligence may be above normal, but their temperament and character show deviations which are accurately classified together as evidences of slowness of development. Fixations at infantile levels account for their puerile conduct. Perhaps it is a similar condition, a "hang-over" in the more nearly normal, which produces the playboys and others who contribute to social disorders. In this detail it would not be amazing, when we consider the universality of the infections and malnutritions of childhood, if some scientist were later to discover that the inability of the race to find ways out of its social dilemmas is due to the failure to develop that maximum degree of attainment which is needed for the complete elucidation of these most complex of all human problems.

Reverting to analogy and metaphor, the somatopsychic physician "tills the ground" for the somatic root mass. He attempts to prevent the advent of noxious influences and agents—infections or insidious foreign propagandas. His theory brings a clear realization that, whether growing or grown, the acceptance and incorporation of harmful agents, whether germs or adverse situations, can have but one effect upon the mind, at least in tendency, and that is to retard progress and

mental advancement to the goal of all human endeavor—the attainment of that harmony and beauty (whether of intellect, temperament, or character) which is the necessary and desirable precondition for the enjoyment of those aims of any free democracy—life, liberty, and the pursuit of happiness

In the words of the ancient Latins, the objective of the somatopsychic theory and practice is the accomplishment and fruition

of the ancient ideal—*mens sana in corpore sano* (a healthy mind in a healthy body)—in a hectic, if not a chaotic, present-day world situation

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THE SOCIETY OF THE NEW YORK HOSPITAL

Lewis Cass Ledyard, Jr., Fellowship

The Lewis Cass Ledyard, Jr., Fellowship was established in 1939 by a gift from Mrs Ruth E Ledyard, wife of the late Lewis Cass Ledyard, Jr., a governor of the New York Hospital. The income, amounting to approximately \$4,000 annually, will be awarded to an investigator in the fields of medicine and surgery or in any closely related field. This amount will be applied as follows \$3,000 as a stipend and, approximately, \$1,000 for supplies or expenses of the research. In making the award, preference will be given to younger applicants who are graduates in medicine and who have demonstrated fitness to carry on original research of high order. The recipient of this Fellowship will be required to submit reports of his work under the Fellowship, either at stated intervals or at the end of the academic year, and when the result of his work is published he will be expected to give proper credit to the Lewis Cass Ledyard, Jr., Fellowship. The research work under this Fellowship is to be carried on at the New York Hospital and Cornell University Medical College. The fellowship will be available on July 1 at the beginning of the academic year. Applications for the year 1942-1943 should be in the hands of the Committee by December 15. It is expected that the award will be made by March 15, 1942.

Application for this Fellowship should be addressed to

The Committee of the Lewis Cass Ledyard, Jr., Fellowship
The Society of the New York Hospital
525 East 68th Street
New York, New York

PHYSICIAN, DUST THYSELF

Dr W H G Logan, dean of the Chicago College of Dental Surgery, recently addressed an audience of doctors and dentists in Wichita, Kansas, as reported in the *Wichita Medical Bulletin*. Many of us, he said, are prone to complain to our office girl that the fixtures have not been thoroughly dusted. We complain to the building manager that the walls or floors are not kept up as they should be. We become tired of our office furniture and have it refinished, or perhaps buy new. We look at our surroundings with critical eye and when dissatisfaction be-

comes too disturbing we do something about it. "But," he interrogated, how often do you look at yourself as an individual—as a human entity? What are you doing about that mind? Have you recently stepped out of yourself, stood at a distance and with critical eye evaluated yourself physically, spiritually, intellectually? You owe it not only to yourself but to your patient to do so. Your patient comes to you with confidence and trusts that you can help him. You must keep yourself well dusted if you are to serve him best."

Case Report

THIAMINE CHLORIDE IN THE TREATMENT OF DIABETIC ACIDOSIS

JAMES RALPH SCOTT, M D , F A C P , New York City

A DIABETIC, white, American housewife, aged 64, was admitted to St Luke's Hospital on November 27, 1940, in diabetic acidosis. She had been a diabetic patient for sixteen years and was adequately controlled on 30 units of protamine insulin daily. The morning of the day before admission she forgot to take her usual insulin. The evening before admission she felt well. She had a cocktail before dinner and ate more than usual. She awakened at 1 00 A.M. with vomiting and abdominal pain. At 8 30 A.M. when seen by me, she was lethargic and slow in speech but was conscious and coherent. A physical examination was essentially negative except for a slight hyperpnea, pulse, 90, oral temperature, 99 F., and blood pressure, 110/80. When admitted to the hospital at 9 40 A.M. the hemoglobin was 85 per cent, red blood count, 4,300,000, white blood count 9,500, polymorphonuclears, 88, lymphocytes, 7, monocytes, 4, eosinophils, 1, blood sugar, 288 mg. per hundred cubic centimeters, CO_2 , 16.4 volumes per cent, urine sugar, 1.2 per cent, and acetone, xxx.

The blood chemistry, urinary findings, insulin dosage, and fluid intake are summarized in Table 1.

The patient remained in the hospital for three days, leaving the morning of the fourth day. She has been well since and is adequately controlled on her former diet and protamine insulin dosage.

On admission the patient was placed on our acidosis routine as outlined. For the first twelve hours she was unable to take any nourishment by mouth. During this period she received 465 units of insulin and 4,500 cc of 5 per cent glucose in physiologic saline intravenously. Total carbohydrate was 225 Gm. The second day she was placed on our fluid diet. Unmodified insulin was given as indicated by the urinalyses. Orange juice was given in addition to the diet if the urinalyses indicated a need for it. The third day, she was placed on our beginning diabetic diet with a value of carbohydrates 130, proteins 65, and fats 50. Protamine insulin was given for the first time on the third day with additional unmodified insulin as indicated.

When large amounts of fluid are given by vein (or by mouth) the excretion of thiamine in the urine is increased.¹ This tends to create a thiamine deficiency. The need for thiamine varies directly with the carbohydrate calories assimilated. For twenty-four hours the only food this patient received was 225 Gm of glucose. This increased her need for thiamine. She was subjected, therefore, at one and the same time to an increased loss of thiamine and an increased need for thiamine. Add to this a possible chronic suboptimal thiamine intake due to the American habit of eating plus the restrictions inherent in a diabetic diet, and the assumption of a developing

thiamine deficiency is justified. Therefore, thiamine chloride, 50 mg, was given intramuscularly once daily.

It was not until the patient was discharged and the chart reviewed that the apparent favorable effect of the thiamine chloride on the course of the acidosis was discovered (Fig 1).

For the first six hours the patient was intensively treated. During this period she received 3,000 cc of 5 per cent glucose in saline (150 Gm carbohydrate) and 270 units of unmodified insulin. During this period of intensive therapy her CO_2 rose from 16.4 to 19.2 volumes per cent—practically no rise at all. As great a difference as this may occur from changing technicians. But in the next three and one-half hours the CO_2 rose from 19.2 to 40 volumes per cent. In half the time it took to increase by 2.8 volumes per cent, it increased by 30.8 volumes per cent!

This appeared to be an unusual acceleration of improvement. In searching for a cause, it was discovered that the thiamine chloride happened to be given two hours after the 19.2 volumes per cent reading and an hour and a half before the 40 volumes per cent reading. One is tempted to assume that the thiamine chloride may have effected this improvement.

It appears that there is a theoretic basis for supposing that such an effect might have been predicted. It has been definitely established that pyruvic acid, an intermediate metabolite in the oxidation of carbohydrate, accumulates in the blood as a result of thiamine deficiency.¹ Pyruvic acid is a ketone body. Its accumulation in the blood diminishes the alkaline reserve. When thiamine is given in adequate amounts, the excess of pyruvic acid is removed and the alkaline reserve returns to normal.¹

It is my contention that the sharp acceleration in improvement of the alkaline reserve observed following the administration of thiamine chloride to this patient was due to the removal of accumulated pyruvic acid from the blood.

It is not suggested that an accumulation of pyruvic acid in the blood is the sole cause of the diminished alkaline reserve in diabetic acidosis, but it may very well be a contributing cause in the presence of thiamine deficiency. Of course, if thiamine deficiency does not exist, the administration of thiamine chloride would have no effect whatever on the restoration of a normal alkaline reserve.

Diabetic acidosis may, therefore, at times be due to two components. First, an accumulation of the well-known ketone bodies—acetone, diacetic acid, and beta-oxylbutyric acid—and, sec-

TABLE 1*

Date	Time	Blood		Urine		Fluids and Food	Insulin	Notes		
		Sugar	CO ₂	Sugar	Acetone					
11/27	9 40 A.M.	268	16 4	1 2	xxx		30			
	10 20					1,500 cc. s & g	35			
	10 30						10			
	11 30						20	Vomited		
	12 30 P.M.						50			
	1 00	107	19 2	6 7	xxxx		20			
	1 30						20			
	2 00						20	Vomited		
	2 30						20	Vomited		
	3 20						20			
	4 00					1,500 cc s & g	50			
	4 30						20			
	5 00						20			
	5 30						20			
	6 00						20	Vomited gastric lavage		
		Thiamine chloride 50 mg I M		o			20			
	6 30					20				
	7 30	100	40				20			
	7 55					1,500 cc. s & g	35			
	8 30						15			
	10 30						10			
	12 00 M					6 oz O J		Saline 6 oz P.R.		
11/28	1 30 A.M.	46	28	g		Fluid diet	5			
	3 00					6 oz. O J	5	Perspiring		
	4 30							Saline 6 oz. P.R.		
	7 30					4 oz O.J				
	9 30					4 oz. O.J				
	10 00									
	11 30									
		Thiamine chloride 50 mg I M		b	x	4 oz O.J		Taking fluids well		
	1 30 P.M.					15				
	3 30					15				
	4 00									
	5 30									
	7 30	79	40			4 oz. O.J				
	9 30									
	10 30									
11/29	6 00 A.M.	364	41	g		C 130 P 65, F 50				
	8 00						20 Prot.			
							10 Reg			
	10 00						10			
	2 00 P.M.						5			
	4 00									
	7 30						5			
11/30	8 00 A.M.			b			30 Prot.			
	9 30						10			

* A record of three days treatment of a case of diabetic acidosis. The thiamine chloride was given intramuscularly. Most of the urinalyses were done by the attending nurse using Benedict's qualitative solution. The results are recorded as orange (o) yellow (y), green (g) or blue (b). At intervals more complete analyses of the urine, including tests for acetone, were performed in the laboratory with results recorded in grams per hundred cubic centimeters.

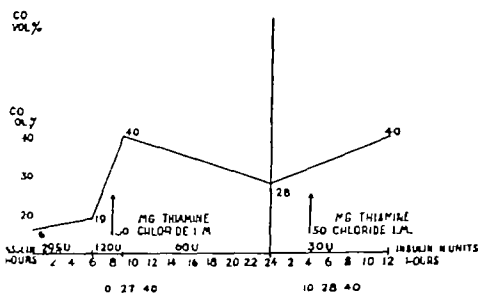


FIG 1—The thiamine chloride was given the first day two hours after the 19 volumes per cent reading was made, and one and one-half hours before the 40 volumes per cent reading was made.

On the second day it was given four hours after the 28 volumes per cent reading was made and eight hours before the 40 volumes per cent reading was made. The insulin figures represent the amount of insulin given during the periods between successive readings of the CO₂ volumes per cent.

and, an accumulation of the lesser known ketone body, pyruvic acid. The specific treatment for one is glucose and insulin. The specific treatment for the other is thiamine chloride. Physiologic saline is given for both conditions.

In diabetic acidosis under treatment it is frequently found that acetone disappears from the urine but that the blood CO₂ remains low. That means that the component of the acidosis which was due to a lack of insulin and glucose has been removed. It is suggested that the remaining component may be due to thiamine deficiency with its resultant accumulation of pyruvic acid in the blood. The prompt restoration of the alkaline reserve in this patient following the injection of thiamine chloride strongly suggests that this patient was suffering from a deficiency of thiamine.

It is admitted that the evidence supplied by this single case is incomplete, but the sequence of events is most suggestive and is a challenge for further investigation. This investigation is being undertaken and will be reported in a subsequent communication.

Meanwhile, would it not be wise to give liberal

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doses of thiamine chloride to all patients in diabetic acidosis on the assumption that they may be deficient in thiamine? Until a simple chemical method is devised to measure the concentration of pyruvic acid in the blood, the administration of thiamine would be purely empiric. It would at least do no harm and in the presence of a thiamine deficiency would accelerate the restoration of a normal alkaline reserve.

Summary

1 A case of diabetic acidosis is reported in which the alkaline reserve was promptly restored to normal following the injection of thiamine chloride.

2 It is suggested that diabetic acidosis may frequently be complicated by a thiamine deficiency with a consequent reduction of the alkaline reserve due to the accumulation of pyruvic acid in the blood.

3 It is further suggested that thiamine chloride be given to all patients in diabetic acidosis on an empiric basis until further investigation proves or disproves its administration as a sound physiologic measure.

Reference

- 1 Cowgill, George R. J.A.M.A. 110 806 810 811 (March 20) 1938

Postgraduate Courses

A course on internal medicine from the Department of Medicine of the Long Island College of Medicine has been arranged by Dr. Albert F. R. Andresen, of Brooklyn, for the Cortland County Medical Society at the Staff Room of the Cortland County Hospital on Friday evenings at 8:30. The lectures follow:

October 24 "Dietary Therapy in Gastrointestinal Disease," by Dr. Albert F. R. Andresen, professor of clinical medicine, Brooklyn.

November 7 "Practical Considerations of Blood Dyscrasias," by Dr. Eugene R. Marzullo, clinical professor of medicine, Brooklyn.

November 21 "Some Problems in Cardiac Diagnosis," by Dr. Nicholas J. DiGregorio, instructor in medicine, Brooklyn.

December 5 "Diabetes Mellitus—Its Modern Interpretation and Treatment," by Dr. Milton B. Handelsman, assistant clinical professor of medicine, Brooklyn.

December 19 "Some Problems in Pulmonary Disease," by Dr. Richard H. Bennett, clinical professor of medicine, Brooklyn.

A course on general medicine (No. 1) was arranged by Dr. Walter W. Palmer, College of Physicians and Surgeons, Columbia University, New York City, for the Nassau County Medical Society. The following lectures are held at the South Nassau Communities Hospital, Rockville Centre, at 4:00 P.M.

October 20 "Diabetes Mellitus," by Dr. David D. Moore, New York City.

November 17 "Rheumatic Fever," by Dr. Alvin F. Coburn, assistant professor of medicine, Columbia University, College of Physicians and Surgeons, New York City.

December 15 "The Diagnosis and Treatment of Anemia," by Dr. Paul Reznikoff, associate professor of clinical medicine, Cornell University Medical College, New York City.

January 19 "Diseases of the Heart," by Dr. Harold E. B. Pardee, assistant professor of clinical medicine, Cornell University Medical College, professor of internal medicine (cardi-

ology), New York Post-Graduate Medical School, New York City.

February 16 "Asthma," by Dr. Robert A. Cooke, assistant professor of clinical medicine, Cornell University Medical College, New York City.

March 16 "Syphilis," by Dr. Leshe P. Barker, New York City.

April 20 "Nephritis," by Dr. Dana W. Atchley, associate professor of medicine, Columbia University, College of Physicians and Surgeons, New York City.

The lectures on "Rheumatic Fever" and "Syphilis" are a cooperative endeavor between the State Department of Health and the Medical Society of the State of New York.

Dr. Walter W. Palmer also arranged a course on general medicine for the Oswego County Medical Society at the Elks Club, Oswego, at 8:30 P.M. The program follows:

October 22 "Rheumatic Fever," by Dr. Alexander T. Martin, clinical professor of pediatrics, New York University College of Medicine, New York City.

November 7 "The Diagnosis and Treatment of Anemia," by Dr. Paul Reznikoff, associate professor of clinical medicine, Cornell University Medical College, New York City.

November 19 "Diseases of the Heart," by Dr. Charles A. R. Connor, instructor in medicine, New York University College of Medicine and the Cardiac Classification Service, New York City.

December 3 "Nephritis," by Dr. John D. Lyttle, assistant clinical professor of pediatrics, Columbia University, College of Physicians and Surgeons, New York City.

December 17 "Treatment of Chronic Rheumatism (General Medicine, No. 4)," by Dr. Russell L. Cecil, professor of clinical medicine, Cornell University Medical College, New York City.

The lecture on "Rheumatic Fever" is a cooperative endeavor between the New York State Department of Health and the Medical Society of the State of New York.

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors. The next report will appear in the December 1 issue and will concern "Management of the Menopause."

Treatment of Chronic Nephritis

DR CLAUDE E. FORKNER The subject of our therapeutic conference is "The Management of Chronic Nephritis." We are glad to have Dr. H. O. Mosenthal here to introduce the discussion.

DR H. O. MOSENTHAL I am glad to be back here again. It was long ago that I was an intern at this institution.

In this discussion I am taking for granted that etiologic factors such as foci of infection, pyelitis, mechanical obstruction of the ureters and urethra, etc., have been taken care of and that the chronic nephritis is established beyond curative redemption. The treatment resolves itself into, first, prevention of the progress of the nephritis and, second, keeping the patient fit, enabling him to participate in all activities in full measure while life lasts—and it often continues for a long time.

The notion of a generation ago that a low protein diet shields the kidney apparently will not down, despite the fact, which needs no proof, that starvation or semistarvation results in malnutrition and in degenerative changes in all tissues, including the kidneys. Furthermore, an elevation of urea or nonprotein nitrogen in the blood is harmless, does not produce uremia, and may even be beneficial in that it provides a splendid diuretic stimulus.

There is no formula for the management of chronic nephritis, as is implied by the oft recurring question "What is the treatment for chronic nephritis?" The treatment of chronic nephritis is almost entirely symptomatic and is largely governed by the symptom complex that dominates the disease picture at the moment. Consequently, the therapy varies greatly, not only from patient to patient, but also at different periods in the same case.

The disturbances, any one of which may develop as the paramount influence in chronic nephritis, are three: (1) albuminuria, (2) hypertension, and (3) renal insufficiency.

These are the hubs of the wheel from which

various sequelae originate. The complete word picture of these syndromes is this:

- I. Albuminuria
 - 1. Hypoproteinemia
 - a. Edema
 - 2. Hypocalcemia
- II. Hypertension
 - 1. Heart
 - a. Hypertrophy—dilatation
 - b. Coronary thrombosis
 - 2. Brain
 - a. Thromboses—hemorrhages
 - b. Encephalopathy
 - 3. Kidneys
 - a. Nephrosclerosis
- III. Renal insufficiency
 - 1. Anemia
 - 2. Retention uremia
 - a. Acidosis
 - b. Hypocalcemia
 - c. Chloride retention or loss

Albuminuria—Thus far, no remedy has been discovered which will check albuminuria. On lying down, about half as much albumin is lost in the urine as in the upright position. This may be the reason why some patients with nephrotic edema exhibit a diuresis and loss of weight when they are put to bed.

Hypoproteinemia.—This will inevitably occur when the albuminuria is marked 1 per cent or more and prolonged. A high protein diet is the main prophylactic and curative measure. Amounts of protein up to 200 Gm per day and more have been advocated. Such quantities of protein do no harm and are of great benefit. However, the appetite of most nephritic patients falters when they are confronted with such a diet, and in the average patient it is an achievement to have them attain the criterion of protein intake set up by Peters and Bulger—of 75 Gm plus the quantity of albumin lost in the urine. In addition

to alleviating hypoproteinemia, a liberal protein intake is of aid in stemming the development of anemia and also, as I have had the opportunity to observe in several cases that had previously been on a prescribed lacto-vegetarian diet, it will lower hypertension and will relieve albuminuric retinitis.

All the food proteins have not yet been studied in regard to their power to form blood and body proteins. In the order of efficiency, according to Weech, they are beef serum, egg white, beef muscle, beef liver, casein, and gelatin. All of these appeared to be good protein restorers except gelatin, which showed a negative value. Dried beef serum, desirable as it may be from the nutritional point of view, has thus far not been supplied in palatable form.

Thus far, the systematic infusion of plasma or amino acid preparations has yielded no satisfactory or conclusive results, although when these procedures are perfected they should become most valuable.

Acacia infusions to raise the osmotic pressure of the blood have been advocated and discarded in turn and are recently again sponsored by Goudsmit and Binger of the Mayo Clinic.

Transfusions, as a rule, do not serve to raise the level of the serum proteins, and it is useless to resort to them for this purpose.

Edema—The measures that remedy hypoproteinemia also prevent or cure edema. When the serum albumin drops in spite of treatment, reaching a level of 3 per cent or less, then edema may develop. The salt intake should be restricted as much as possible. The limitation of the fluid intake is not so important as that of the sodium chloride. Salt substitutes as marketed are usually sodium salts of some acids other than hydrochloric and inasmuch as it is the sodium moiety of the sodium chloride that induces water retention they are valueless. Potassium and ammonium chloride have been suggested as substitutes for table salt. Because of their bitter taste, they rarely become a routine part of the diet, they have to be taken in capsule form, 2 to 4 Gm a day and they will relieve some of the craving for salt and will have a distinct diuretic action.

The possible existence of cardiac insufficiency and the advisability of using digitalis have to be considered in every case. The purine diuretics are rarely employed except theophylline combined with the mercurials. Urea is a valuable diuretic in those cases in which the blood urea is not elevated. It is

not resorted to as often as it should be. No complications are caused by it. It is readily soluble and is administered in solution, about 10 Gm three times a day.

Thyroid has been advocated, in large, even huge, doses. The results have been somewhat disappointing. It may be that sufficient amounts have not been given. A good way to regulate the thyroid medication is to push it when the plasma cholesterol is elevated and to withdraw it as the cholesterol approaches a normal level.

The mercurial diuretics are the final resort when the nephrotic edema becomes a crippling complication. In cardiac conditions they have been found to be irreplaceable. Their use in nephrosis has been successful and has not damaged the kidneys. When a nephritis accompanies an edema there has been much hesitancy about using them. Some of us have had recourse to them in cases of chronic nephritis and have seen no harmful result. The mercurials, combined with theophylline, constitute the ideal diuretic, since theophylline promotes filtration of glomerular urine and mercury checks reabsorption of fluid and sodium chloride in the tubules, thus calling all parts of the nephron into action simultaneously. Acid salts, usually ammonium chloride or potassium nitrate, will enhance the effect of the mercurials but need not be employed in every case. They may, if administered without restraint, be responsible for a considerable degree of acidosis.

Hypocalcemia has thus far been regarded as a terminal event occurring in uremia. However, it often develops earlier in the course of chronic nephritis and produces symptoms that usually are comparatively slight, manifesting themselves as "cramps" in the extremities or abdomen, though they may be severe and come to the fore as full-blown tetany. The usual calcium medications by mouth may be used. In emergencies, calcium by vein may be necessary. The most reliable remedy for oral administration, just as it is in hypoparathyroidism, has proved to be dihydrotachysterol, or A T 10. The hypocalcemia probably results from the loss of calcium combined with albumin in the urine. Since we cannot control albuminuria, it is obvious that the deficiency of serum calcium must be rectified by symptomatic, in this case replacement, therapy.

Hypertension often becomes the dominant factor in cases of chronic nephritis and is a common cause of death in this disease. The control of hypertension, whether of the essen-

tial or the renal variety, has not been satisfactorily accomplished. Specific remedies that hit the bull's eye with even moderate regularity do not exist. The latest of these, potassium thiocyanate, has in my experience not been so completely successful as those who have advocated it have found it to be. However, the devastating reactions that have been attributed to it have failed to materialize when the dosage was guided according to the thiocyanate concentration in the patient's blood.

It is both surprising and gratifying how much can be accomplished for hypertensives by hygienic, physical, and mental adjustments in which selected drug therapy plays a big role. A permanently elevated blood pressure is one of the functional disturbances that is more effectively handled in private practice than in an institution. This does not gainsay that other methods of treatment, especially the discovery and remedying of unilateral renal impairments, are not of the greatest importance, and we live in the hope that the efforts of those investigators who are engaged in preparing a biologic preparation for the control of blood pressure will be successful.

Renal insufficiency, when marked and prolonged, results in uremia and death. The retention of urinary excretory products within the body in the long run causes two sets of symptoms: asthenia and toxic manifestations, ordinarily called retention uremia. We have learned to cope with the latter with a fair degree of success, but the former is still a mystery to us and patients succumb to it.

Anemia—J. R. Bradford in 1899 found that when three-quarters of the kidney substance is extirpated, in dogs, death takes place from asthenia without coma or convulsions. The asthenia is attended in human beings by anemia, which is the constant accompaniment of renal insufficiency whether this is caused by chronic nephritis or other renal or urinary tract impairments. The remedying of anemia in chronic Bright's disease is a major problem since the diminution in the hemoglobin and red blood cells may be a reason for disability and may be a contributing cause to a fatal termination. A high-protein, high-calorie diet will do a great deal in slowing the development of anemia. However, when renal function is severely curtailed it will not prevent the occurrence of anemia or its downward progress. The routine medications for anemia accomplish little. Iron, liver extracts, and vitamins are usually given in the customary fashion. They probably put the brakes on the downhill course, but their slight

effect is disheartening to both patient and doctor.

The really efficacious remedy for the anemia of chronic Bright's disease is transfusion. It must be understood at the outset that transfusions will return the blood count to normal but will accomplish nothing more than this, and any expectation that they will increase renal function or relieve the symptoms of uremia, is not warranted. On the other hand, transfusions produce no harmful effects. They will not elevate the blood pressure and are no more prone to cause reactions in chronic nephritic patients than in other persons. Since transfusions provide the only effective means of rectifying anemia in chronic Bright's disease, it is difficult to see why there has been so much opposition to their use. When the transfusions are used early—that is, before the hemoglobin and red cells are greatly diminished—one will do, but when the anemia has progressed to a point where the hemoglobin is down to a level of 50 per cent or less, then, as a rule, it requires three or four transfusions of 500 to 700 cc each to restore the blood to its normal level. As a rule, the first transfusion or two have no demonstrable effect, while the third and fourth result in a marked rise in the number of red blood cells. Direct transfusions have been much more satisfactory than indirect ones. I have come to appreciate this largely as a result of the demonstrations given me by Dr. Lester Unger.

An interesting case in this connection is one of a boy of high-school age who was the victim of severe chronic nephritis. His anemia was rectified by frequently repeated transfusions carried out by Dr. Lester Unger. Death resulted in an unexpected way. Marked hemorrhages developed rapidly. The blood was vomited and passed in the urine and the stools, and there were many large ecchymoses. The terminal tendency of chronic nephritis to bleed evidently was not prevented by maintaining the hemoglobin and red cells at a normal level.

Retention Uremia—Although the anemia may be considered as part of the effect of retention uremia, the accepted symptoms of actual retention uremia—marked lassitude, nausea, vomiting, coma, and convulsions—come on a long time after the progressive loss of hemoglobin and red cells has begun. Originally, it was thought that the accumulation of all the urinary excretory products, especially the urea, was responsible for the uremic symptoms, but this concept has come to be

modified so that, today, the generally accepted opinion is that the urea and the other nonprotein nitrogenous substances in the blood are not responsible for the uremic manifestations. The symptoms appear to rest largely on three changes—namely, acidosis, hypocalcemia, and either loss of or excessive rise of sodium chloride in the blood and tissues. We are in a position to remedy these disturbances by intravenous calcium, the administration of suitable amounts of alkalis, and the regulation of the salt intake. Consequently, the symptoms of uremia can usually be fairly well controlled, and our objective is largely to determine how well we can make nephritic patients continue to live with a mere 5 per cent of their kidney tissue remaining. Of course, this has its limitations and death occurs from asthenia. A week before life terminates, the blood pressure is prone to drop and assume a normal or even a subnormal level, although the general sense of comfort and well-being is not disturbed in all cases.

By meticulous care in meeting and remedying the changes that occur in patients with chronic nephritis their life can be prolonged a good deal. As long as they live, with the exception of a few weeks before death, they are active and useful citizens. The defeatist will, of course, ask what is the use of all this when in many instances a fatal termination cannot be avoided and the evil day is only postponed. However, as we have watched the subjects of chronic Bright's disease and seen them active, ambitious, and enjoying life, instead of going through months of chronic invalidism, the careful, symptomatic treatment accorded these patients has appeared to be distinctly worthwhile.

DR. FORENER. Before opening this interesting presentation to general discussion, I am going to ask Dr. Tolstoi to discuss it for a few minutes.

DR. EDWARD TOLSTOI. I just want to elaborate on one point, the mechanism of acidosis in nephritis, since the subject was covered so thoroughly. I am sure that Dr. Mosenthal is familiar with this picture as most of you probably are, but I will repeat it to fix it in our minds. The diet of any individual consists of proteins, carbohydrates, and fats, and that diet holds for the nephritic as well. Our proteins are composed of carbon, oxygen, hydrogen, nitrogen, sulfur, and phosphorus. The carbon, hydrogen, and oxygen are oxidized to CO_2 and water and excreted by the way of the lungs, skin, and kidneys. Nitro-

gen is excreted by the kidneys, and the sulfur and phosphorus are oxidized to SO_4 and PO_4 , respectively. Those are the two acid radicals, the accumulation of which in the blood stream results in the acidosis associated with the failing kidney.

The phosphate radical plays another important role. Since there is some calcium floating about, we have a combination of it with the phosphate, the compound being eliminated through the gut, establishing a low blood calcium level. The body attempts to compensate for the calcium want. The parathyroids are then stimulated, resulting in a compensatory hypercalcemia, and sometimes we find at postmortem that the parathyroids are enlarged. That is the mechanism of the renal type of acidosis as I have been accustomed to regard it. As to the mechanism of the toxemia, as Dr. Mosenthal mentioned, it is not due to the high blood urea. A person with a urea concentration of 200 or 300 mg may be about with few or no toxic symptoms, while another with 75 mg may be drowsy and reveal manifestations of calcium want, such as nervous irritability.

It has been my concept that nephrosis is a relatively benign disease. It occurs in young people. The so-called pure lipid nephrosis that was described by Muller, made known in this country by the work of Epstein of Mount Sinai and then elaborated by the Rockefeller group, shows these characteristic phenomena: prodigious edema—every cavity may have fluid, the face is swollen, severe albuminuria, low plasma proteins, elevated cholesterol, normal blood urea content, absence of hematuria. These patients are treated, as Dr. Mosenthal indicated, with a high protein diet, but their appetite, as a rule, is poor and it is difficult to get them to eat. It is my impression from 1 or 2 cases that I have seen recently that a large dose of vitamin B_1 intravenously two or three times a week or even daily stimulates their appetite somewhat. I have in mind a boy who was here for over ten weeks and who recovered to such a degree that the only indication of the disease was a residual moderate albuminuria, 2 plus or so.

I am much interested in the question of the so-called "dry" and "wet" uremia. I am not entirely clear as to the mechanisms involved and the basis for treatment. Perhaps Dr. Mosenthal can help us out. When an individual is brought to the hospital in uremic coma, as we recognize it from the conventional syndrome, and he is "dry," is it desirable to give fluids by every possible route or will it

tial or the renal variety, has not been satisfactorily accomplished. Specific remedies that hit the bull's eye with even moderate regularity do not exist. The latest of these, potassium thiocyanate, has in my experience not been so completely successful as those who have advocated it have found it to be. However, the devastating reactions that have been attributed to it have failed to materialize when the dosage was guided according to the thiocyanate concentration in the patient's blood.

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and the blood proteins are prone to rise, consequently, the edema will disappear. With that comes the so-called compensatory polyuria, when these patients put out more urine than usual to eliminate the urinary excretory products. The result is that they have the familiar large volume of urine with low specific gravity, and they are then dry—that is, free from edema. Unless there is a complication, they remain dry, if I can call it such, right down to the terminal uremic stage. When they become wet, I believe it is nearly always due to cardiac insufficiency, which may occur in these cases. They are prone to have hypertension. Hypertension dilates the left ventricle and makes it insufficient, consequently, edema may develop. Sometimes you cannot prove this clinically, but digitalis remedies the edema in a great many of these cases.

Concerning ambulatory treatment, I believe it is really the essential way to manage these cases. It is essential for two reasons. In the first place, the disease lasts a long time. In the second place, we want to keep these people at work, like the case Dr Tolstoi mentioned who is now attending some university. All of these cases should be checked at least once in six months, when the urine should be examined for albumin, casts, red cells, and concentrating power. The level of blood urea, the serum proteins, and serum calcium should be determined. The height of the blood pressure and the presence or absence of anemia must also be investigated. That gives us all the phases that should be considered. They vary from time to time, and the treatment has to be changed and adjusted to the symptoms and signs that present themselves at the moment.

As examples of how this plan works out I can mention three cases, all of whom curiously enough began their "nephritic career," in 1931. One boy was the son of a doctor. The boy's brother had died of nephritis. When albumin was found in his urine, his family naturally were apprehensive. He was about 18 at the time. There was albumin in his urine, but he was normal in all other respects. We have checked him about twice a year by the method I have mentioned. About three years ago he developed hematuria. A urologic check-up failed to reveal any reason for the hematuria. The only other change he has had is a slight lowering of his blood proteins, which was remedied when the proteins in his diet were increased, so that he has been perfectly normal except for the albuminuria and hematuria. He is engaged in a business ca-

reer, is married, and has two children, and everything is progressing satisfactorily, although the albuminuria and the hematuria have continued for nine years.

There is another man in whom we first noticed albuminuria about nine years ago. His blood pressure at that time was normal. The albuminuria continued. Hypertension developed in this case, the pressure rose to about 200 or more systolic and 120 or more diastolic, and he died of cerebral complications due to the hypertension eight years after the albuminuria was first noticed. His kidney function was normal. There was no anemia, and no other troubles.

Finally, I have the record of a man who attended Yale University in 1931. He was examined by Dr. Peters at that time and, on several subsequent occasions, had no sign of nephritis except albuminuria. He died in May, 1940, in uremia with a renal insufficiency.

Consequently, the progress of chronic nephritis can proceed along different lines, and each one of them may be a different syndrome though they are all part of the same disease. Too, what is so important, a case may be treated for edema during one six months' period, in the next six months' period the edema disappears, while hypertension becomes the outstanding feature. A year later renal insufficiency may be the dominant factor that has to be controlled. The main point I want to stress is that there is no single formula for the treatment of chronic nephritis. There are various symptom complexes, if we can call them such, and treatment must be adjusted to the symptoms that present themselves.

DR FORKNER: We will now open the meeting to general discussion.

DR C. H. WHEELER: It is my notion that a reciprocal relationship exists between calcium and phosphorus in the blood. Hence, if a patient has phosphate retention as part of renal insufficiency he will develop hypocalcemia and, if phosphate is not increased, hypocalcemia will usually fail to develop. The level of the blood calcium is then more closely related to that of the phosphate than it is to protein, although protein plays a role.

DR MOSENFELT: I think that what Dr. Wheeler says is perfectly true, but my point about this story is that from an empiric point of view we have found that the serum calcium does diminish in cases with albuminuria and the hypocalcemia does produce symptoms. How the phosphorus stands in

suffice merely to control the nervous unrest with sedation and other measures? Would Dr Mosenthal also tell us how to treat an ambulatory case? Consider the case of a man who has "recovered" from acute diffuse glomerulonephritis. We see him two or three months later and find a high albuminuria. Is that to be regarded as the chronic stage of the disease? As you all know, probably 2 per cent of the supposedly normal population have albuminuria, and some of them have even granular casts. Are they really normal, or shall we consider every individual with a high albumin and a few casts as having some type of renal lesion? McLean found during the first World War that among some 70,000 soldiers 5 per 100 had albumin in the urine and about 1 per 1,000 had finely granular or hyaline casts.

For the advanced renal disease, Dr Mosenthal painted a much more hopeful picture than I am inclined to associate with these cases.

DR. FORKNER About twelve years ago I attended a meeting of an association of physicians in Atlantic City, and at that time there was held a symposium on chronic nephritis. Many different points of view were presented, and there was much discussion about the etiology and treatment of chronic nephritis, many individuals feeling strongly about certain points of view and others feeling strongly about other points of view. At the end of the discussion, after two hours or so, Dr William Welch mellowed the discussion by saying that he had heard almost word for word the same discussion about chronic nephritis twenty years before. So I think, although we have made a good deal of progress, there is still much to be learned and much that is still confusing. We will ask Dr Mosenthal if he will answer the questions that have been raised, and then we will go on with other questions from the group.

DR. MOSENTHAL Dr Tolstor's account of the mechanism that brings about the low serum calcium in nephritis follows that of Marriott. I had the good fortune to be with Dr Marriott when he first put out that hypothesis in about 1916 or 1917. But I think there are other reasons for the low calcium than its combination with phosphates and its vicarious elimination by the intestines. Marriott, in the Department of Pediatrics, investigated some of the adult cases I had charge of, and it was fascinating to see his predictions work out. When there was a fairly advanced chronic nephritis or renal insufficiency from any cause such as polycystic kidneys, the blood

phosphates were elevated, the CO_2 combining power was depressed, and the calcium was diminished. The matter, as far as my observations were concerned, rested there until one day about six years ago a child whom I had been treating for nephrosis came into my office showing marked tetany. That child had a low serum calcium, without renal insufficiency and without acidosis. Since then we have been determining the serum calcium in cases of albuminuria, and we found that without acidosis and without renal insufficiency the serum calcium is often diminished and that apparently it produces symptoms that may be quite severe. A case of this sort is that of a dentist who had an albuminuria and a chronic nephritis without impairment of renal function and without any elevation of the blood pressure and who complained particularly of cramps in his hands. That was rather an embarrassing situation to a dentist. With dihydrotachysterol medication the serum calcium rose and at the same time his symptoms disappeared. In nephrosclerosis there is comparatively little albuminuria, and these patients do not develop a hypoproteinemia or hypocalcemia, although they may die of renal insufficiency. Recently, I saw 1 such patient who died of retention uremia with a normal level of serum proteins and a normal value of serum calcium, 10.6 mg per hundred cubic centimeters. Consequently, I am a little bit skeptical about the original explanation of hypocalcemia in renal conditions as the only available explanation. I do think a loss of serum calcium becomes of importance long before acidosis develops in those patients who have a marked albuminuria, though it does not always parallel the degree of hypoproteinemia.

As far as the relation of nephrosis and chronic nephritis is concerned, we have the cases of nephrosis that will follow Epstein's dictum that all these patients get well. I have seen them cured in less than six months after the development of marked hypoproteinemia and marked edema. In some, the albuminuria persists indefinitely in spite of all that can be done, and a great many of them go over into a chronic diffuse glomerulonephritis.

The difference between "dry" and "wet" uremia is, I think, explained on this basis. In the early stages of chronic nephritis there is likely to be the so-called nephrotic component associated with marked edema. As the nephritis persists and the kidney becomes sclerosed, the amount of albumin diminishes in the urine,

because of the humidity I think, on the whole, they do best with the comforts of their home surroundings, provided they are properly protected from the weather when they go outdoors. The ideal experiment would be to set up a series of air-conditioned rooms in which the nephritic patient could live and really see what effects would ensue when the humidity and temperature were carefully controlled.

DR. F. J. HUGHES I should like to ask Dr. Mosenthal to say a word about the control of itching in chronic nephritis, what he does for it, and what explanation is most likely?

DR. MOSENTHAL I don't know the explanation. Lots of people have written about the itching, and I do not think there is any satisfactory answer. It may be that with the compensatory polyuria these patients have they dry out their skin and because of it they have the itching.

DR. FORKNER In patients with bilateral nephritis, with possible pyelonephritis on one side, what are the chances of getting into the difficulty of a renal shutdown through retrograde pyelography?

DR. MOSENTHAL If they have marked renal insufficiency, I think the chances of a shutdown have to be recognized. Patients with hypertension do not endure retrograde pyelography very well. We have not observed any serious setbacks, but we have seen severe reactions in checking these patients by urologic procedures so that, as a result, patients have had to remain in the hospital for three or four days.

DR. WHEELER How about an intravenous pyelogram? Is renal insufficiency a contraindication?

DR. MOSENTHAL When there is marked impairment of renal function, the intravenous pyelogram is a useless procedure. I have not, up to the present, witnessed a severe reaction in connection with intravenous pyelography.

Summary

DR. McKEEN CATTELL In chronic nephritis we have, by definition, a condition in which irreversible changes are present in the kidney, and therapy, therefore, resolves itself into the problem of preventing the disease from progressing and of keeping the patient as fit as possible. The treatment is, thus, almost entirely symptomatic and is directed toward the alleviation of disorders associated with albuminuria, hypertension, and renal insufficiency.

For the *albuminuria* we have no cure, but it is reduced by bed rest. The associated edema is prevented or relieved by a high protein diet—up to 200 Gm. or more per day. Beef serum, egg white, beef muscle, beef liver, and casein have all been shown to be effective. Gelatin is without value, and transfusions as a rule do not help. The salt intake should be restricted, but limitation of the fluid intake is regarded as of secondary importance. The elimination of fluid is promoted by diuretics, and one of the most useful of these is urea, which in the absence of elevated blood levels may be given in doses of 10 Gm. three times a day. When the edema is advanced and crippling, recourse is had to the mercurial diuretics, which are recommended despite diseased kidneys. Their effect can be enhanced by the use of acid salts, which are employed only when necessary.

The mechanism of the *hypocalcemia* frequently observed in chronic nephritis was discussed and the association with high blood phosphorus and depleted albumin levels was noted, but no agreement was reached as to the primary cause. The remedy is replacement therapy or calcium by mouth or, in emergencies, by vein. Dihydrotachysterol by mouth is also efficacious.

The symptoms of *uremia* may to a large extent be controlled by the prevention of hypocalcemia, acidosis, and excessive chloride retention.

For *hypertension* we have no specific treatment, but a great deal can be accomplished by attention to general hygiene, including both physical and mental aspects. Thiocyanate was the only form of drug therapy mentioned as having possible value.

As the disease progresses an *anemia* tends to develop, an occurrence that may be delayed by a high protein, high caloric diet. While routine anemia therapy (iron, liver, and vitamins) is usually instituted, it accomplishes but little. Repeated transfusions are efficacious in raising the blood count and improving the general condition of the patient, but they do not improve renal function or relieve the symptoms of uremia.

In general, it is recommended that few, if any, restrictions be placed on ordinary activity, diet, or fluid intake. The important matter in the management of patients with chronic Bright's disease is meticulous care in symptomatic treatment, by which means we may prolong life and maintain these patients as active and useful citizens until the terminal stages of the disease.

all of these cases I do not know, but I am certain that the calcium will diminish without there being any acidosis of note. It is purely from the practical therapeutic point of view that we have pursued this subject thus far and have found that we could relieve many disagreeable symptoms by attending to the calcium deficiency.

DR OSCAR BODANSKY I think it ought to be mentioned in respect to the blood calcium, phosphorus, and protein that formulas have been devised by Peters and by Greenwald showing that there is a relationship among the three of them—the calcium content varies inversely as the phosphorus and directly as the protein. When these three are taken into account the agreement of findings is usually, but not always, pretty good—that is, the blood chemistry findings are in accord with these formulas.

DR HARRY GOLD I should like to ask Dr Mosenthal if he would say a few words about the matter of diet in nephritis. Is there any virtue in the restriction of the meat intake or the protein intake in any case of chronic nephritis? Is there any merit in the suggestion of putting patients on an acid-ash diet in nephritis with edema? Also, should fluids necessarily be restricted in a patient with nephritis and edema, or do these patients do better even though they have a good deal of edema if one allows a liberal supply of water—let us say, $1\frac{1}{2}$ L or even 2 L a day? One further question, does physical rest play an important part in the maintenance of renal function? There are experiments showing that violent physical exercise has the tendency to depress renal function and reduce the clearance tests. These have been made with normal athletes. I wonder whether a person with a borderline renal insufficiency might not precipitate serious renal failure by walking about a good deal or by engaging in other physical activities. Is there any experience in regard to this matter?

DR MOSENTHAL About twenty-five years ago Von Norden dominated the treatment of all the so-called diseases of metabolism. He advocated a prolonged lactovegetarian diet whenever albuminuria occurred. The conception was that albuminuria signified renal insufficiency, and we all accepted it. That was before we had a test for renal function except the specific gravity in casual specimens of urine. Then Rowntree and Geraghty's phenolsulfonephthalein test came into being, and we discovered, much to our amazement, that a person could have albumin in the urine

while the kidney function was apparently normal. Twenty-five years ago we began with fear and trepidation to feed a high protein diet to patients with albuminuria. We were gratified to learn that this remedied their anemia, increased their vigor and failed to raise their blood pressure or diminish their renal function. This practice has continued, and a few years ago we fed a high protein diet to all patients until the blood urea nitrogen rose as high as 40, then as high as 60 and, today, contrary to what I think some others would do, I allow nephritic patients to have all the meat and fish and eggs they want until the end of their days. As I have watched the situation, I think that is the proper method to pursue. As far as the acid-ash diet is concerned, we do know that an acidosis promotes diuresis, but whether we have not become overenthusiastic in this regard is an open question. At the Post-Graduate Hospital I was shown a severe acidosis resulting from the routine administration of ammonium chloride.

The idea of giving fluids in the presence of edema is based on the fact that it is not the fluid intake that results in the retention of water and edema, but it is the sodium. Fluid can be taken in reasonable amounts without causing an increase in the edema provided sodium salts are rigidly restricted. Somebody was telling me only a few days ago that the cardiologists in the treatment of cardiac failure were doing the same thing—giving water without salt and giving it freely.

The questions of physical rest and exercise influencing the clearance tests can well be considered together. In 1915 I saw a medical student with albuminuria, and I had the idea at that time that if a person had albuminuria he should be put up in cotton batting and a glass case and looked at once in a while to see how he felt. This young man had been a patient of Dr Christian's and I corresponded with Dr Christian about him. He said, "Why don't you let him go ahead and do his work? His albuminuria is going to pursue the same course whether he is active or whether he is not." Ever since then I have encouraged these patients to lead normal lives as far as possible. The results have been gratifying because life becomes worth living, and the fortunate optimism that chronic nephritic patients have right down to the very end can express itself.

DR TOLSTOI Would you care to say something about climate?

DR MOSENTHAL I think Florida is a poor climate for nephritic and cardiac patients.

The business meeting with the election of officers was in the morning, and members of the Association were guests of the hospital at a luncheon. Later, Dr Harris addressed the group and gave a demonstration on vitamin complex.

Sound motion pictures depicting the work of Dr Tom Spies, of Hillman Hospital, Birmingham, Alabama, were shown through the courtesy of Squibb and Company.

Members of the county association from Hudson and every town in Columbia County attended the annual session. The group meets twice each year, and the next meeting is scheduled to be held during the summer of 1942.

Erne County

Dr Joseph C O'Gorman, chairman of the publicity, education, and speakers' supply committee, reports that Thursday, November 13, has been designated as the "Fall Clinical Day and Fifty-Year Dinner," which will be held in the Hotel Statler, Buffalo.

The afternoon will be devoted to a scientific program by three nationally outstanding members of the profession. Following this will be a "refreshment and get-acquainted hour," and the evening will be devoted to honoring the forty-odd members who have practiced medicine for fifty years or more.

The meeting of the Buffalo Academy of Medicine on October 29 was devoted to the general practitioners who comprise the majority of the physicians practicing in Erie County. Three local physicians each presented subjects of specific interest to the general practitioner, including rectal conditions, the new sulfa drugs, and varicose veins.

The Regional Maternal Welfare Teaching Day was held at the University of Buffalo Medical School on October 16. It was presented under the auspices of the Maternal Welfare committees of Erie, Niagara, Chautauqua, Cattaraugus, Genesee, and Wyoming county medical societies, the University of Buffalo School of Medicine, the Division of Maternity, Infancy and Child Hygiene of the New York State Department of Health, and the Medical Society of the State of New York.

The program was "Maternal Mortality Investigation in Buffalo," by Dr Louis A. Siegel, "Treatment of the Toxemias of Pregnancy," by Dr Francis C Goldsborough, "Diagnosis and Treatment of Bleeding in the Third Trimester," by Dr Herbert Burwig, "Treatment of Post-Partum Hemorrhage," by Dr Hugh C McDowell, "Technique of Breech Extraction," by Dr Milton G Potter, and "Forceps Technique," by Dr Edward G Winkler.

Dr Walter S Goodale, superintendent of the Edward J Meyer Memorial Hospital, died of a heart attack on October 8 at his home in Buffalo. He was 66 years old. Among the policies that Dr Goodale inaugurated and which commanded national attention were the establishment of a special division of communicable diseases within the hospital, full-time services in the medical, surgery, and laboratory departments, and a department of surgical research and the development at the hospital of the physical therapy department and alcoholic and psychiatric wards.

Greene County

Dr R. Reudemann, Jr, of Albany, was the guest speaker at the annual meeting of the county society which was held on October 14 in the Memorial Hospital in Catskill. His subject was "The Diagnosis and Management of the More Common Skin Diseases in General Practice."

Dr Herbert F Weinauer, delivered the annual presidential address and the election of officers was held.

Dr Herbert Weinauer, president of the county society, explained why he is in favor of the public health nursing project at the meeting of the supervisors on October 13, in compliance with a resolution passed by the Greene County Tuberculosis and Public Health Association at their last meeting. They requested him to speak on the project from his own practical experience.

Miss Clara Marciano, public health nurse, has been serving a population of approximately 5,000 persons in Windham, Ashland, Prattsville, and Durham, giving a service such as the association is proposing for the county, with each nurse living in and serving a community of that size.

If Greene County will appropriate \$4,059, the State Department of Health will match this fund with another \$4,059, then Greene County can employ three public health nurses. In order to have the county adequately covered with public health nurses, the State Department of Health will place two more nurses there without any additional expense to the county.

Figures presented at the meeting showing costs of tuberculosis cases not discovered early enough for early cure demonstrated the saving in human values and taxes when an adequate program of prevention, treatment, and cure is carried out by public health nurses in cooperation with the doctors.

Jefferson County

At the regular monthly meeting of the county society held on October 9 at the Black River Valley Club in Watertown, Dr William W Hall discussed "The Present Status of Diabetes." Dr Frederic R. Calkins, president, presided at the meeting, which was attended by 45 members and which was preceded by a dinner.

Kings County

The Kings County and South Brooklyn Medical societies are collaborating with the Health Department in a community experiment that stresses the control and cure of tuberculosis in the early stages of the disease.

A section of South Brooklyn has been temporarily designated as the grounds for the experimental project which will start early in December.

Outlining tentative plans for the experiment at a meeting of the Tuberculosis Sanatorium Conference of Metropolitan New York at the Kings County Hospital, Dr Alfred E. Shupley, emeritus professor of preventive medicine of Long Island College of Medicine, said that a letter will be prepared under the joint heading of both medical societies and will be sent to doctors in the South Brooklyn area.

The doctors, in turn, will urge their patients and friends to come in for x-ray examinations.

Medical News

Speakers on Chemotherapy Available to Medical Groups

IN THE October 15 issue there was an editorial on the recent conference held in Albany on the use of the sulfonamides in the treatment of disease. The program of the meeting, which was attended by thirteen experts on chemotherapy from some of the larger medical centers throughout the East, is printed below. County societies and other medical groups that may wish it can have a course dealing with every aspect of the chemotherapy of sulfonamides arranged for them through the Council Committee on Public Health and Education.

The program of October 7 and 8 at Albany was as follows

Chemistry, absorption, distribution, conjugation, and excretion of sulfonamides

E K Marshall, M D
Baltimore

Action of sulfonamides on bacteria and role of immunity in the response to chemotherapy

Colin MacLeod, M D
New York City

The approved laboratory in New York State in relation to chemotherapy

John K Miller, M D
Albany, New York

Modes of administration and preparation of solutions

W Barry Wood, Jr, M D
Baltimore

Toxicity and follow-up of patients

Maxwell Finland, M D
Boston

Submission of written questions from the floor
Round-table discussion

William S McCann, M D
Rochester, New York

The clinical use of gramicidin and penicillin

Chester S Keefer, M D
Boston

Pneumonia

Norman Plummer, M D
New York City

Gonorrhea

C J Van Slyke, M D
Washington, D C

Infections of the urinary tract

E P Alyea, M D
Durham, North Carolina

Sulfonamides in surgery—local and general use

John S Lockwood, M D
Philadelphia

Use of sulfonamides in pediatrics

Benjamin W Carey, M D
Pearl River, New York

Treatment of meningitis

John H. Dingle, M D
Boston

Submission of written questions from the floor
Round-table Discussion

George M Mackenzie, M D
Cooperstown, New York

County News

Broome County

At the regular meeting of the society, held October 14 in the auditorium of City Hospital in Binghamton, the society decided to enroll in the Council of Social Agencies of Broome County for the coming year. It was reported at the meeting that a new tuberculosis clinic had been opened by the State Department of Health in Binghamton, Dr E R. Dickson to be in charge. This step was taken as a result of studies made by the Tuberculosis Conference Committee, set up last year by the State Department of Health, with representatives from the State Charities Aid Association, the State Medical Society, the Metropolitan Life Insurance Company, and the New York State Department of Mental Hygiene.

After the regular meeting Dr Peter Irving, secretary of the State Society, addressed the members. He reviewed the activities of the State Society in general, stressing in particular certain efforts to solve present urgent problems. One of these is the revision of the school health program. Dr Irving also asked that experiences of the members with "direct payments" for medical care under the categories of relief to the aged, blind, and dependent children be reported to the county society committee as well as to the local health officer for reference after the period of observation is over.

Cattaraugus County

Dr J Lous Preston, of Salamanca, died on October 3 from injuries received in an airplane accident a few days before. Dr Preston was 52 years old. Active in civic, as well as medical, organizations, he was one of the founders of the Western New York Hospital Service Corporation and a member of its board of managers, he was also one of the organizers of the Western New York Medical Plan, representing the county society on its board of managers. He was a past-president of the society and had practiced medicine in Salamanca for twenty-one years.

Columbia County

Dr Ralph S Spencer, Hudson surgeon, was elected president of the county society at the annual meeting of the organization held October 7 at the Hudson City Hospital. The meeting was presided over by Dr R. P Harris, retiring president.

Other officers elected were vice-president—Dr Cecil L. Schultz, of Philmont, secretary-treasurer—Dr Henry C Galster, Hudson, re-elected, delegate to the New York State convention—Dr John L. Edwards, Hudson, censors—Dr Clark G Rossman, Dr R. P Harris, Hudson, Dr Frank C Maxon, Chatham, Dr Henry J Noerling, Valatie, and Dr Leonard Carpenter, Germantown.

Rockland County

The fall meeting of the county society was held at the Letchworth Village, Thiells, New York, on September 24.

The speaker of the afternoon was Dr Morris Kellogg Smith, F.A.C.S., attending surgeon at St. Luke's and New York hospitals. Dr Smith delivered a most interesting talk on "The Medical and Surgical Treatment of Thyroid Disease."

Following the scientific session and adjournment of the meeting, the members retired to the dining room where a collation was greatly enjoyed.—William J Ryan, M.D., Secretary

St. Lawrence County

Members of the county society held their annual dinner meeting at the Arlington Inn, Potsdam, on October 9. A business and scientific session followed the dinner.

Dr W J Baldwin, of Potsdam, was elected president to succeed Dr U R Plante. Other officers chosen were Dr F E Clark, Ogdensburg, vice-president, Dr Robert Reynolds and Dr J McNulty, both of Potsdam, re-elected secretary and treasurer, Dr M J Stearns, Ogdensburg, Dr Frederick Mason, Massena, and Dr Robert Reynolds, censors.

Retiring President Plante spoke on "Acne-bulgaris," skin disease, as part of the program.

Seneca County

The members of the county society were guests of the staff of the Willard State Hospital for their annual meeting October 2.

At this meeting the fee for home calls was increased from \$2.00 to a minimum of \$2.50 and the fee for office calls was raised from \$1.00 to a minimum of \$1.50.

An amendment to the bylaws was introduced to reduce the number of yearly meetings from ten to four.

Dr K. S. Landauer, of Geneva, showed some pictures and held an interesting bull session on "Diagnosis and Treatment of Allergic Diseases."

To take office January 1 are the following: president, Dr G M Brandt, Seneca Falls, vice-president, Dr R. E. Wallace, Seneca Falls, secretary-treasurer, Dr D B Walker, Waterloo, delegate to State Society, Dr Arthur Baldwin, Waterloo, alternate delegate, Dr G M Brandt, Seneca Falls, delegate to Seventh District Branch, Dr A. Letellier, Seneca Falls, and alternate delegate, Dr J E Allen, Seneca Falls.

The Public Health Committee of the county society, through its chairman, Dr Duane B Walker, has organized a series of clinics to cover every village and town in the county. Dr Don Griswold, district health officer, warns that "with the advent of cold weather, communicable disease may make its appearance and it is part of good judgment for every citizen, migrant worker, and resident alike to be immunized as far as possible."

Schenectady County

The county society held a symposium on cancer at a meeting in the auditorium of Nurses' Home, Ellis Hospital, October 7.

Members of the society who spoke and their subjects include: Dr Arthur Q Penta, "Carcinoma of the Larynx, a Case Presentation," Dr

C L Morave, "Primary Carcinoma of the Gall-Bladder", Dr W M Brown, "Gastric Cancer", Dr F F McGauley, "Carcinoma of the Large Intestine", Dr J M Blake, "Cancer of the Lung", Dr H L Traenkle, "Treatment of Cancer of the Skin", and Dr C M Zaza, "Medical Care for the Advanced Cancer Patient."

Steuben County

Members of the county society are being given a course of lectures on traumatic surgery at Bath. The lectures are given by surgical men of New York City, sponsored by the Council Committee on Public Health and Education of the State Medical Society.

The two remaining lectures in the series are November 8, "Treatment of Femur and Humerus Fractures," W D Ludlum, Jr, New York City, November 13, "Nerve and Tendon Injuries," Ernest Lampe, New York City.

Suffolk County

The Suffolk County Tuberculosis and Public Health Association celebrated its twenty-first birthday on September 25 at the Patchogue Hotel.

The celebration was the occasion for the presentation by the association to Dr William H. Ross, of Brentwood, first president of the association, of a citation for public service. The citation was presented by Surrogate Richard W Hawkins, who praised Dr Ross for his "far-sighted leadership and unselfish service."

Among those present were the three men who first proposed the establishing of the Suffolk Sanatorium before the Suffolk Medical Society in 1912. These were Dr Ross, Dr Frank Overton, of Patchogue, and George Nelbach, executive secretary of the Tuberculosis Division of the State Charities Aid Association. Of the 6 original officers 4 were present and of 19 original directors 8 were present.

Sullivan County

The following lectures conclude a pediatrics series that began October 15. November 5, "Rheumatic Fever and Heart Disease" at Workmen's Circle Sanatorium, Liberty, New York, by Dr Albert D Kaiser, associate professor of pediatrics, Rochester University School of Medicine, November 12, "Polomyelitis—Practical Suggestions in the Treatment and Care of a Polomyelitis Case" at Monticello Hospital, Monticello, New York, by Dr Francis Carr, New York City, November 19, "The New York State Program for the Rehabilitation of Handicapped Children" at Lenape Hotel, Liberty, New York, by Dr Francis Carr, New York City, and November 26, "Infectious Diseases of Childhood" at the home of Dr Harry Golembe, 111 Champlin Avenue, Liberty, New York, by Dr A. C Silverman, professor of clinical pediatrics, Syracuse University College of Medicine.

Tioga County

Dr John B Schamel, of Waverly, has been nominated for the presidency of the county society. Officers will be elected in December.

Others nominated are as follows: vice-presi-

and then report their findings to a central headquarters

The annual meeting of the Brooklyn Urological Society will be held on Monday evening, November 10, 1941, at 9 00 P M at the Kings County Medical Society Building

The guest speaker will be Dr Leon Herman, of Philadelphia, professor of urology in the Graduate School of Medicine of the University of Pennsylvania. He will discuss "Difficult and Obscure Urological Problems"

Monroe County

The county society, the University of Rochester Medical School, and the Education Committee of the State Medical Society are cooperating this year for the first time in sponsoring a Postgraduate Institute on November 11, 12, and 13 (See page 2164 for the complete program.)

New York County

Dr James Frederick Rogers and Dr Haven Emerson were honored at a testimonial dinner at the American School Health Association Convention held in Atlantic City on October 13

Dr Louis Faugeres Bishop died at his home in New York City on October 6 Dr Bishop, who was 77 years old, had practiced medicine in New York City for over forty years Since 1908 he had devoted his time entirely to diseases of the heart and blood vessels

Dr Eugene F DuBois, retiring as physician-in-chief of the New York Hospital and professor of medicine at Cornell Medical College, was honored by 250 physicians at a dinner at the Waldorf-Astoria in New York City on October 9 Dr DuBois, an authority on metabolism, is continuing as professor of physiology at the college

The American Social Hygiene Association arranged a dinner on October 11 to mark the thirtieth anniversary of the announcement of the discovery of salvarsan by Dr Paul Ehrlich Mrs Ehrlich was the guest of honor on this occasion. Among the speakers was Dr Thomas Parran, Surgeon General of the U S Public Health Service

Nassau County

Nassau County is in a singularly vulnerable position if trouble should start, says the *Nassau Medical News* It contains vital defense industries of considerable magnitude, it is the home of Mitchel Field But more than that Nassau County is on the direct line of flight to New York City from any point to the East Nassau must be prepared to care for its own casualties

The Office of the State Director of Civilian Defense in New York State, through Major General John F O'Ryan, recently addressed a question to the Nassau County Defense Council asking whether the hospitals of Nassau County had on hand reserve medical stores for a possible 1,500 casualties in one day

The Nassau County Medical Society sees five vital steps necessary in the care of civilian casualties first, there must be medical men immediately available at the scene of the disaster, second, these doctors must have adequate materials and supplies made available to them when they arrive, third, transportation to hos-

pitals must be provided for the more seriously injured, fourth, doctors must be at the hospital to take care of these patients when they are brought in, finally, the hospitals must have immediately available the reserve medical stores needed in an emergency

The society has completed its plan whereby doctors would be available at once both at the scene of disaster and at the hospitals. The other three steps must be taken by other official and voluntary agencies

Oneida County

The regular monthly meeting of the county society was held on October 14 at the Oneida County Hospital in Rome. Luncheon was followed by this scientific program "Carcinoma of the Penis," by Dr John Fitzgerald, "Appendicitis from Pin Worms," by Dr W Theodore Wheeler, interesting case reports and general discussion Dr J B Lawler, president, presided.

Onondaga County

Dr Garrison L Brown has just completed sixty years of practice in Euclid. Eighty-seven last June, Dr Brown is still going strong according to the *Syracuse Herald* of October 5 Dr Brown is the oldest active member of the Onondaga Medical Society and one of its first presidents a half century ago

"Examining the Town" in a recent Onondaga *Bulletin* carried the following paragraph

"One of the busiest men during the summer months was O W H. Mitchell arranging many an important meeting under the guidance of the New York State Medical Society Only a few can fully appreciate what he has done in this capacity"

During October the following broadcasts were arranged by the medical society "The School Child and Its Health" by Dr Ralph R. Scobey on October 3, "Burns" by Dr Leonard M Aquilino on October 10, "The M D and National Defense" by Dr Edward S Van Duyn on October 17, "Kidney Stones" by Dr Ephraim J Goldman on October 24, and "Anemia" by Dr Ellery G Allen on October 31

Ontario County

The regular fourth quarterly meeting of the county society was held at the Canandaigua Hotel on October 14.

The business meeting preceded the dinner after which there was a scientific session. A talk was given on "Diseases of the Skin—in Color," by Dr Leon H. Griggs, associate professor of dermatology, Syracuse University

Otsego County

The regular quarterly meeting of the Otsego County Medical Society was held on September 24, at the Hotel Oneonta in Oneonta. Preliminary steps were taken to recommend a medical adviser, chosen from society members, to act as go-between for practicing physicians and the County Welfare Department in the handling of indigent patients At the scientific session, a paper, illustrated by lantern slides, was given by Dr John Latcher, of Oneonta, on the subject "Endometriosis."

Hospital News

Hospital Bed Facilities in the U S A.

THE most widespread survey ever made of hospital bed facilities in the United States reveals that 1,282,785 beds were available in 9,614 institutions for the medical care of the American people in 1939, according to a September release by the Census Bureau of the Department of Commerce.

The country's 6,991 hospitals and sanatoriums provided the great bulk of this care—355,145,063 patient-days or the equivalent of one weekend stay in a hospital each year for every person in the United States. Infirmarys and nursing, convalescent, and rest homes provided the remainder.

Hospitals and sanatoriums had 1,186,262 beds—92 per cent of the nation's total. Census Bureau figures show that the average hospital had 169 beds and served 5,000 families.

Hospital facilities for the country, however, were well below the "minimum requirements for adequate medical service" set up in 1933 by the Committee on the Costs of Medical Care. Here's how the number of hospital beds per 10,000 population compares:

	Beds Available	Beds Needed
General	38	46
Tuberculosis	6	14
Mental	46	56
Total	90	116

To meet this minimum of 116 beds per 10,000 population, the United States would have to build 2,000 more average-size, 170-bed hospitals.

Even counting in all the beds available in infirmarys and nursing, convalescent, and rest homes, the Census figures show that twenty-six states had inadequate hospital facilities—fewer than 100 beds per 10,000 population. Eighteen states had between 100 and 124 beds—approximately adequate facilities. Massachusetts, New York, Colorado, Maryland, and the District of Columbia had good facilities—more than 124 beds per 10,000 population. New York State alone had 192,345 medical-care beds—more than one-seventh of the nation's total.

Even existing facilities are not being used fully, the Census Bureau Survey indicated. Allowing a margin of reserve for epidemic peaks, the Committee on the Cost of Medical Care estimated that general hospitals would operate most efficiently with an occupancy of 80 per cent, mental and tuberculosis hospitals, with an occupancy of 90 per cent.

In 1939, general hospitals were operating at 70 per cent of capacity, tuberculosis hospitals at 85 per cent, and mental hospitals at 95 per cent. The Census Bureau noted that many mental hospitals are overcrowded because of rapidly increasing hospitalization for this type of illness. Although only 594 hospitals—less than 1 in 10—were for nervous and mental patients, they had 602,850 beds—more than one-half of the total for all types of patient.

Approximately 77 per cent of the care rendered in 1939 was in state, local, and federal govern-

ment-controlled hospitals, 20 per cent in non-profit institutions, and 3 per cent in proprietary institutions, the Census Bureau noted.

Average Stay per Patient in General Hospitals, 1940

AS PART of the exhibit of the American Medical Association at the Cleveland meeting in June there was a chart showing the average stay per patient in general hospitals in 1940 according to the types of hospitals involved, says the Nassau County *Bulletin*.

	Days
Government Hospitals	
Federal	31 3
County	19 4
State	18 1
City	15 6
City-County	15 0
Non Proprietary	
Association	10 7
Church	10 5
Proprietary	
Corporation	8 7
Individual and Partnership	7 8

Newsy Notes

Dr Robert E. Plunkett, of Troy, general superintendent of the tuberculosis hospitals of the state, has been named by the Republic of Colombia as consultant in the construction of a new tuberculosis hospital in that country.

Dr Plunkett will assist the architect designing the building in working out details and in finding a suitable location for the structure. Colombia is the fourth South American country to receive Dr Plunkett's aid in their efforts to fight tuberculosis. Other countries he has aided are Bolivia, Dominican Republic, and Argentina.

. . .

E. W. Jones, director of Albany Hospital and president of the Hospital Association of Northeastern New York, in an address before the Massachusetts Hospital Association at Pittsfield on October 3, said that his experience has shown him that hospitals are "the least understood by the general public of all our social, health, business, industrial, or public utility organizations."

He added that hospitals can tell their story through cooperative relations with local newspapers, telling the hospital's story to the civic, social, and church organizations, and by urging hospital employees to help improve public relations. Constant contact with the community is essential, he said.

"The hospital that maintains an aloof, secretive attitude, refusing to tell its story and to cooperate with all agencies, will become a mysterious, fearsome place from which people shrink," he remarked.

. . .

dent, Dr Hiram Knapp, Jr, of Newark Valley, secretary-treasurer, Dr Ivan N Peterson, of Owego, delegates to state convention, Dr Corbett Johnson, of Spencer, alternate delegate, Dr Frederick K Shaw, of Waverly, censors, Drs. F H Spencer and Frederick A Carpenter, both of Waverly

Tompkins County

At a meeting of the county society in Ithaca on October 9, Dr Robert A. Anderson, of New York City, gave a talk on nasal allergy to a crowded

house—76 in number—*Willels Wilson, Secretary*

Wayne County

The October meeting of the county society was held at the Hotel Wayne in Lyons on October 14. Dr William J Orr, professor of pediatrics at the University of Buffalo College of Medicine, spoke on "Modern Concept and Treatment of Polymycolitis" "Moving X-Rays," a movie, was shown, and the report of the nominating committee was given.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Louis F Bishop	77	P & S N Y	October 6	Manhattan
Frank R. Coe	83	N Y Univ	October 7	Warners
Walter Fischbein	47	Frankfurt	August 24	Woodmere
John C Frey	45	Syracuse	October 8	Syracuse
Frederick H. Goddard	77	Western Reserve	October 12	Rochester
Walter S Goodale	66	Buffalo	October 8	Buffalo
George McK Hall	69	Buffalo	October 2	Buffalo
Frank P Hough	82	Jefferson	July 10	Binghamton
Francis J McKown	69	Albany	October 9	Carmel
George T McMurray	57	L I C Hospital	October 6	Farmingdale
Charles G Pease	86	N Y Hom	October 7	Manhattan
J Louis Preston	52	Univ & Bell	October 3	Salamanca
Charles Slater	38	Glasgow	October 2	South Ozone Park

ADVANTAGES OF COUNTY SOCIETY MEMBERSHIP

The Special Committee on New Members of the New York County Society sums up the advantages of membership admirably in a recent report as follows

The strength of the profession lies in its solidarity and fellowship. Membership in the society has many varied advantages and values, both professional and educational. It gives professional prestige, you have the assurance of ethical standing and professional responsibility to the public, the law, and the profession.

In addition to serving the educational needs of the doctor, the Medical Society of the County of New York engages in a wide range of advisory service in collaboration with members of the municipal, state and federal, and welfare organizations on various aspects of public health and welfare

It affords active membership in the Medical Society of the State of New York and the American Medical Association, it offers admission and participation in annual meetings of the state and national societies, it cooperates in the giving of refresher courses and graduate study courses, and at the same time gives the members an opportunity to express their viewpoint and aid in directing organized medical activities. You get the benefit of your officers and committeemen working for a common interest, collectively solving

problems impossible of solution by individual physicians

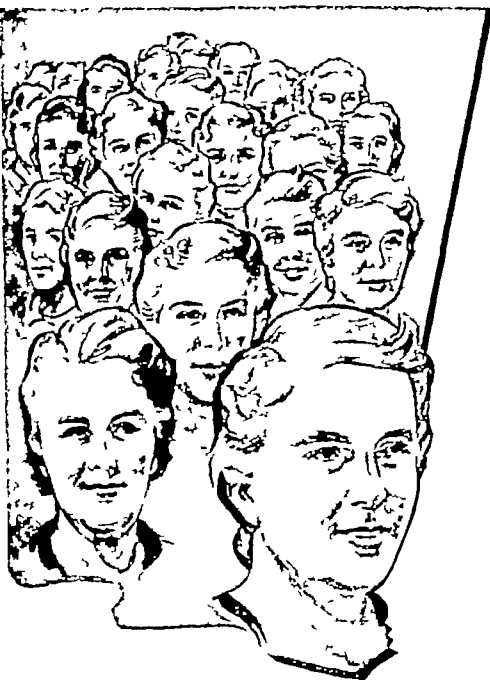
You receive the *New York Medical Week*, the *Medical Directory*, the semi-monthly scientific publication, *THE NEW YORK STATE JOURNAL OF MEDICINE*, an opportunity to obtain group health and accident insurance at a very reduced rate, and the right to free legal defense and low cost indemnity insurance against malpractice claims.

You have individual service and protection in Workmen's Compensation cases, you have protection for yourself and your patients in exposing charlatans, fraudulent schemes, and illegal practitioners through local enforcement agencies and other legal contacts of medicine.

Membership in your county society is necessary for certification by the national specialty qualifying boards, many hospitals require county society membership for staff appointment.

It goes without saying in these trying times that the profession belongs together as a unified body of ladies and gentlemen, able, willing, and cooperative with one another to such a degree that the cost of participation in the New York County Medical Society membership is a privilege and a duty which must and will pay its dividends by an enlightened and healthy community furnishing high type medical standards.

We invite your immediate attention for your own and our own good



"At the menopause 80 per cent of women experience general symptoms of varying character and intensity¹."

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Menopausal
Symptoms

JEFFCOATE,¹ in a paper on estrogenic hormone therapy, states that 80 per cent of women experience menopausal symptoms varying from the well-recognized vasomotor disturbances to those of vaguer character such as headaches, emotional instability, depression, anxiety and muscle pains. In a large percentage of cases these symptoms can be eliminated by adequate estrogenic therapy.

During the more than 10 years in which Amniotin has been available to the medical profession its clinical effectiveness in controlling menopausal symptoms has been abundantly demonstrated.

It differs from estrogenic substances containing or derived from a single crystalline factor in that it contains, in highly purified form, estrogenic substances naturally present in pregnant mare's urine. Its estrogenic activity is expressed in terms of the equivalent of international units of estrone.

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¹Jeffcoate T N A. Brit Med J 2 671 (Sept. 30) 1939

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A SQUIBB PREPARATION OF ESTROGENIC SUBSTANCES
OBTAINED FROM THE URINE OF PREGNANT MARES

Dr John D Stewart, member of the surgical staff of the Massachusetts General Hospital and of the faculty of Harvard Medical School, has accepted the position of full-time surgeon-in-chief of the Edward J Meyer Memorial Hospital at Buffalo and professor of surgery in the University of Buffalo Medical School

sented with a modern, fully equipped iron lung by the Orange County Chapter of the National Foundation for Infantile Paralysis

To prevent the landlord from taking over operation of Yonkers Professional Hospital, the institution's board of directors has agreed to a higher rent schedule and will assume responsibility for whatever deficit may result from increased rent, Dr John A. Faiella, board president, disclosed on October 3

Work will soon begin on a new two and one-half story dispensary building at Cumberland Hospital, Auburn Place and North Elliott Place, Brooklyn. The foundation will be strong enough to add two more stories when sufficient funds are allotted for their construction

The dedication ceremonies of the new \$700,000 Hillside Hospital, were held on October 19. The site of the mental hospital is at 263rd Street and Union Turnpike, Queens, Long Island.

Originally, the Hillside Hospital was located in Hastings and the directors had asked the Village Board for permission to build an additional wing to the property which was located just above Reynolds Field.

With the refusal of the Board to grant such authority, because of Village zoning laws, the hospital was moved from Hastings last year

Hospital Plan, Inc., has remodeled a building at 5 Hopper Street, Utica, for the exclusive use of the nonprofit hospital and cooperating medical plan. Hospital Plan, Inc., one of the first of 68 similar plans in the United States to be officially approved by the American Hospital Association, has adopted the Blue Cross as its emblem and, in cooperation with sixty-seven other Blue Cross plans, exchanges information and transfers enrollments and hospitalization cases

Dr Vincent Haight, of Buchanan, has been unanimously elected president of the Medical Board of the Peekskill Hospital to succeed Dr B R. Lowery whose term has expired. The consulting staff and the courtesy staff of the Peekskill Hospital were reappointed

Other officers elected were vice-president, Dr Nathaniel Blumenkranz, secretary, Dr Leo V Feichtner (re-elected), treasurer, Dr Willard W Sweet, Jr (re-elected), executive officer, Dr Theodore Trousdale, Supervisory Committee Dr Nathaniel Blumenkranz, Dr Frederick Rauch, and Dr Hyman Millman (re-elected)

The Tubercular Pavilion at Riverside Hospital' the Bronx, will not be completed this year because of material shortage, it is announced by Dr John G Grimley, deputy commissioner of hospitals. The project was one of eight city improvements given high priority ratings by the OPM, and all the steel needed for the framework of the \$1,000,000 hospital structure has been delivered. But additional steel for elevators, stairways, etc., must be obtained on the basis of priority rating that places it secondary to government needs

Sixteen hundred babies have been born at Monticello Hospital since it opened in 1923. A dollar contribution to the hospital for each of these babies was the aim of Philip Kaplan, chairman of the arrangement committee for the annual hospital banquet.

Improvements

A new emergency ward for men in the C and D Pavilion of Bellevue Hospital in New York City was opened on October 2 by Dr William F Jacobs, medical superintendent of the hospital. The ward is equipped with all modern fixtures, including indirect lighting, and has a capacity of 24 beds. There is a balcony from which physicians and nurses can look down on the entire ward

The new \$200,000 addition to the Brooks Memorial Hospital in Dunkirk will be opened to the public in the early part of December. The new building is the first of two similar wings planned to complete the new hospital plant

Metal laundry chutes, which will convey all the soiled clothing and linens (12 tons daily) of 3,600 inmates directly to washing and cleaning apparatus, will be installed by WPA, among other features incorporated in a \$207,500 Presidential-approved project. The project also involves 1,300,000 square feet of interior and exterior painting and the replacement of obsolete plumbing features including old galvanized water lines in all buildings, which cover 28 acres between Albany and Utica avenues.

According to Dr Clarence H Bellinger, superintendent in charge, the residential population of the Brooklyn Hospital has increased since 1936 from 1,250 patients to 3,600 patients

St. Luke's Hospital in Newburgh has been pre-

Defense priorities have occasioned the delay in the completion of the new addition to the Leonard Hospital in Troy, which was to have been opened September 1. The addition will probably not be ready before December

"SEE YOUR DOCTOR:" Reproduced below is Number 171 of a series of full-page advertisements published by Parke, Davis & Co. In the interest of the medical profession. This "See Your Doctor" campaign has been running in *The Saturday Evening Post* and other leading magazines for thirteen years



The man who nearly died . . . from a few kind words

BEYOND THAT DOOR lies a very sick man. True, his doctor says he is going to pull through. But he has come mighty close to paying a tragic price for a few words of free advice from a well-meaning friend.

When he complained of a nagging pain in his abdomen, his friend said "You've probably eaten something that's poisoned you. Here's what I'd do . . ."

So he promptly followed his friend's suggestion and took a cathartic. And in a matter of hours he was being rushed by ambulance to the hospital with a ruptured appendix.

His friend, of course, had acted from the kindest of motives. But he didn't know that an abdominal pain might mean acute appendicitis, in which case a cathartic should never be taken.

Unfortunately appendicitis is only one of many illnesses where amateur medical advice can result in tragedy. Yet, human nature being what it is, many people just can't resist the temptation to offer advice when a friend is sick.

Intelligent medical treatment depends upon various factors which only a physician is qualified to evaluate. When something

seems wrong with you, it is the part of wisdom to observe this common-sense rule: Take a friend's advice about buying a radio, a car, or even a home if you wish; but don't let him advise you about your health.

Don't let a friend who *means* well tell you how to get well. To get well, and *keep* well, the man to see is your physician.

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PARKE, DAVIS & COMPANY
Detroit, Michigan

*Seventy-five years of service to
medicine and pharmacy*

SEE YOUR DOCTOR

Say you saw it in the NEW YORK STATE JOURNAL OF MEDICINE

POSTGRADUATE INSTITUTE
OF THE
MEDICAL SOCIETY OF THE COUNTY OF MONROE
AND THE
UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY
WITH THE COOPERATION OF THE MEDICAL SOCIETY THE OF STATE OF NEW YORK
NOVEMBER 11, 12, AND 13

	Tuesday, November 11	Wednesday, November 12	Thursday, November 13
9 00-10 00 A.M.	Medical Rounds	Pediatric Rounds	Surgical Rounds
10 00-12 00 A.M.	Institute Assembly <i>Subject Endocrine Disorders</i> 1 Cushing syndrome 2 Juvenile diabetes 3 Cretinism 4. Diabetes insipidus Summary by guest speaker—Dr Russell L Haden, physician-in-chief of the Cleveland Clinic, Cleveland	Institute Assembly <i>Subject Infectious Diseases</i> 1 Bacterial meningitis 2 Undulant fever 3 Clinical entities due to herpes virus 4. Incidence and mortality trends of contagious disease Summary by guest speaker—Dr John A. Toomey, director of the Division of Infectious Diseases, Cleveland City Hospital, Cleveland	Institute Assembly <i>Subject Peripheral Arterial Disease</i> 1 Arteriosclerosis and thromboangitis obliterans 2 Raynaud's disease 3 Posttraumatic vasospasm Summary by guest speaker—Dr Alton Ochsner, professor of surgery, Tulane University, New Orleans
12 15-2 00 P.M.	Luncheon Forum—Laboratory Methods in Clinical Medicine, Dr Russell L. Haden	Luncheon Question Box Guest Speakers Dr J Murray Steele, assistant professor of medicine, New York University, New York Dr Hugh Auchincloss professor of clinical surgery, Columbia University, New York Dr Alton Ochsner, professor of surgery, Tulane University, New Orleans Dr John A. Toomey, professor of pediatrics, Western Reserve University, Cleveland	Luncheon
2 30-3 30 P.M.	X-Ray Diagnostic Conference	2 30-4 30 P.M. Academy of Pediatrics Program <i>Symposium on the Newborn Period</i> 1 Treatment of asphyxia and cyanosis 2 Feeding problems 3 Vitamins 4 Infections of the newborn 5 Anemias 6 Hemorrhagic disease	2 00-3 00 P.M. X-Ray Diagnostic Conference
3 30-4 30 P.M.	<i>Round Tables</i> 1 Nephritis 2 Obstetrical hemorrhages 3 Treatment of burns and infected wounds	2 30 P.M. Problems in the Treatment of Adult Tuberculosis	3 00-4 00 P.M. <i>Round Tables</i> 1 Nutrition 2 Neoplasm therapy 3 Dermatology
7 00 P.M.	Monroe County Medical Society Dinner and Meeting Guest Speaker Dr Howard W Haggard <i>Subject To be announced later</i>	8 45 P.M. Monroe County Medical Society Lecture — Dr John A. Toomey <i>Subject Poliomyelitis</i>	8 30 P.M. Eastman Memorial Lecture—Dr Alton Ochsner <i>Subject The Treatment of Intravenous Clotting</i>

PHYSIOLOGIC ANTISEPSIS WITH **ARGYROL**



NO CILIARY INJURY

DECONGESTION WITHOUT VASOCONSTRICTION

DETERGENT AND DEMULCENT

NO PULMONARY COMPLICATIONS

NO SYSTEMIC TOXICITY

Safe and Effective Mucous Membrane Therapy

The ability to kill micro-organisms is but one of many factors which determine the clinical efficacy of a mucous membrane antiseptic.

It is because ARGYROL impedes bacterial life without injuring the tissues, because it aids and does not impede those natural defensive processes which the tissues employ to throw off infection, and because it is non-noxious to the organism as a whole, that ARGYROL is truly a "physiologic mucous membrane antiseptic."

ARGYROL effects a decongestion through circulatory stimulation and without resorting to powerful artificial vasoconstriction. Because of its unique physical properties it is detergent,

demulcent, and inflammation-dispelling. But it is non-injurious to the cilia—whose vital role in overcoming upper respiratory infections has been repeatedly pointed out. ARGYROL remains equally bland and non-irritating to the tissues in all concentrations from 1% to 50%, and it is free from the dangers of systemic toxicity and pulmonary complications.

ARGYROL has a superior clinical record to all other mild silver proteins and it is chemically and physically different—in colloidal dispersion, in Brownian movement, in pH and pAg and in chemical reactions. Insist on the Original ARGYROL Package.

A. C. BARNES COMPANY, NEW BRUNSWICK, N. J.

ANTISEPTIC EFFICIENCY PLUS

- 1 SOOTHING AND INFLAMMATION-DISPELLING PROPERTIES
- 2 NO CILIARY INJURY—NO TISSUE IRRITATION
- 3 NO SYSTEMIC TOXICITY
- 4 NO PULMONARY COMPLICATIONS
- 5 DECONGESTION WITHOUT VASOCONSTRICTION

SPECIFY THE ORIGINAL ARGYROL PACKAGE



REGIONAL MATERNAL WELFARE TEACHING DAY

Nassau and Suffolk Counties

THE Maternal Welfare Teaching Day will be held at the Nassau Hospital in Mineola, New York, on Thursday, November 13. Dr Arthur C Martin, of Hempstead, is chairman of the local committee on arrangements. Other committee members are Drs L J Barber, W W Gardner, and George Bergman from Suffolk, and Drs A F Calvelli and R L Jones from Nassau.

The event is sponsored by the Long Island College of Medicine and is presented under the auspices of the Department of Obstetrics and Gynecology, the Long Island College Hospital, Maternal Welfare committees of the Nassau and Suffolk County Medical societies, the Division of Maternity, Infancy and Child Hygiene, New York State Department of Health, and the Medical Society of the State of New York.

The meeting will be called to order at 1 30 P.M. by Dr Harvey B Matthews, regional chairman, Maternal Welfare Committee, Medical Society, State of New York, who will introduce Dr George Borden Granger, chairman, Maternal Welfare Committee, Nassau County Medical Society, Dr Leon J Barber, chairman, Maternal Welfare Committee, Suffolk County Medical Society, and Dr Arthur C Martin, chairman, Local Committee on Arrangements.

2 00 P.M. Demonstration of a Maternal Welfare Conference Procedure, Dr Charles A. Gordon, Brooklyn, professor of clinical obstetrics and gynecology, Long Island College of Medicine (Kings County Division)

Hemorrhage Associated with Pregnancy

2 30 P.M. 1 Bleeding During the Early Period of Pregnancy, Dr Vincent P Mazza, instructor in obstetrics and gynecology, Long Island College of Medicine.

2 50 P.M. 2 Bleeding During the Last Trimester of Pregnancy, Dr Mervyn V Armstrong, assistant clinical professor in obstetrics and gynecology, Long Island College of Medicine

3 10 P.M. 3 Postpartum Hemorrhage, Dr Morris Glass, assistant clinical

professor in obstetrics and gynecology, Long Island College of Medicine

3 30 P.M. The Toxemias of Pregnancy, Dr Frank P Light, instructor in obstetrics and gynecology, Long Island College of Medicine.

Exhibits and Demonstrations

1 Postgraduate Education in New York State, Dr O W H. Mitchell, Syracuse, New York, chairman, Council Committee on Public Health and Medical Education, Medical Society of the State of New York.

2 Shock (Experimental data, graphs, charts, illustrations, photographs, etc), Dr Erich Ponder

3 The Blood Plasma Bank, Dr T J Curphey and Dr J Wesley Bulmer

4 Obstetrical Pathology, Dr T J Curphey

Adjournment to Garden City Hotel

A social hour will be held at 5 30 P.M. followed by a dinner meeting at 6 30 P.M. The speaker will be Dr Alfred C Beck, professor of obstetrics and gynecology, Long Island College of Medicine. His subject will be "How Can the Obstetrician Aid in Reducing the Mortality of the Prematurely Born Infant?" The discussion will be opened by Dr Minor Hill, followed by a general discussion and/or questions.

The price of the dinner is \$4.00 plus 40¢ new Federal Tax, including cocktails and gratuities. No other fees will be charged. Dress—Informal. The Committee on Arrangements must know how many plan to attend the afternoon session and how many will be at the dinner. Reservations should be addressed to

Committee on Arrangements

ARTHUR C MARTIN, M.D., chairman,
131 Fulton Street,
Hempstead, L.I.

The car had come to a sudden standstill on a country road. The motorist descended, diagnosed the trouble, and then applied at a neighboring cottage for assistance.

"Pardon me," he said to the old woman who answered his knock, "do you by chance possess any lubricating oil?"

The old woman shook her head.

"Any oil will do," said the motorist, hopefully, "castor oil if you have any."

"I ain't got it," said the old woman, regretfully, "but I could fix you up with a bit of salts."

—Kablegram

The publicizing of a biological discovery before the matter has been fought out in expert conclave is not only stupid but in many cases is cruel by reason of the false hopes it arouses and the vain expenditures of money and effort it imposes on those who may be misled. To be just to the scientists themselves, it may be said that the most serious delinquencies of this kind committed in our country in the last decade or so must be laid at the doors of administrators and directors impelled by desire for institutional advertising.—Hans Zinsser in *As I Remember Him*

Perplexities IN PROVIDING SUFFICIENT VITAMIN B *complex*



Planning of diets which provide sufficient amounts of the factors comprising vitamin B complex presents certain difficulties. The quantitative distribution in foods has been rather accurately determined for some of the factors, but regarding others much must still be learned. Moreover, there is an appreciable loss of water soluble factors during cooking.

In view of these and other perplexities, the synthesis and concentration of the various factors of the vitamin B complex group assume particular importance.

Betaplexin—vitamin B complex—is available in several forms. Variations in dosage are made readily and individual tastes are easily satisfied.

BETAPLEXIN

Trademark Reg U S Pat Off & Canada

Brand of VITAMIN B COMPLEX

Elixir!

Syrup!

Tablets!

Capsules!

WINTHROP CHEMICAL COMPANY, INC.

Pharmaceuticals of merit for the physician

NEW YORK, N. Y.

WINDSOR, ONT



Workmen's Compensation

September 15, 1941

Concerning Physicians Making out Employer's C-2 Report of Accident

Some time ago the propriety of a physician's preparing the C-2 report for an employer was questioned. An opinion was requested of the Industrial Commissioner as to the propriety of this procedure. Under date of September 9, 1941, the following ruling has been received from the Department of Labor:

"Dear Dr. Kaliski

"This is in reply to your letter of July 23rd in the above matter

"In this instance the insurance carrier complained that the employer's report, our form C-2, was made out by the claimant's attending physician and submitted to the employer's bookkeeper. I have delayed in replying to this matter in order to give it second thought.

"Technically, it would appear that the employer has complied with Section 110 of the Workmen's Compensation Law since the form was signed by a person in his employ designated to perform this function. On the other hand, it was obviously the intent of the Workmen's Compensation Law to have the information required by the Industrial Commissioner corrected and fully supplied. It is conceivable that the practice complained of may deprive the Department of Labor of information as to the circumstances of the accident or injury. *It is therefore in the interest of justice that authorized physicians be advised that it is not their business to prepare reports which the law requires employers to file.*

Very truly yours,

RALPH R. BOYER, Director,
Division of Workmen's Compensation"

Authorized physicians are, therefore, requested to desist from this practice in the future. The form C-2 must be made out, signed, and filed by the employer. It would not be improper for a physician, reporting a claim, to request the employer to file the C-2 form promptly with the Department of Labor and carrier, but it is not the physician's duty or right to make out the form and submit it to the employer for his signature.

DAVID J. KALISKI, M D, Director

Announcement of Van Meter Prize Award

The American Association for the Study of Goiter again offers the Van Meter Prize Award of \$300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association which will be held at Atlanta, Georgia, June 1, 2, and 3, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations, should not exceed 3,000 words in length, must be presented in English, and a typewritten, double spaced copy must be sent to the corresponding secretary, Dr. T. C. Davison, 478 Peachtree Street, Atlanta, Georgia, not later than April 1.

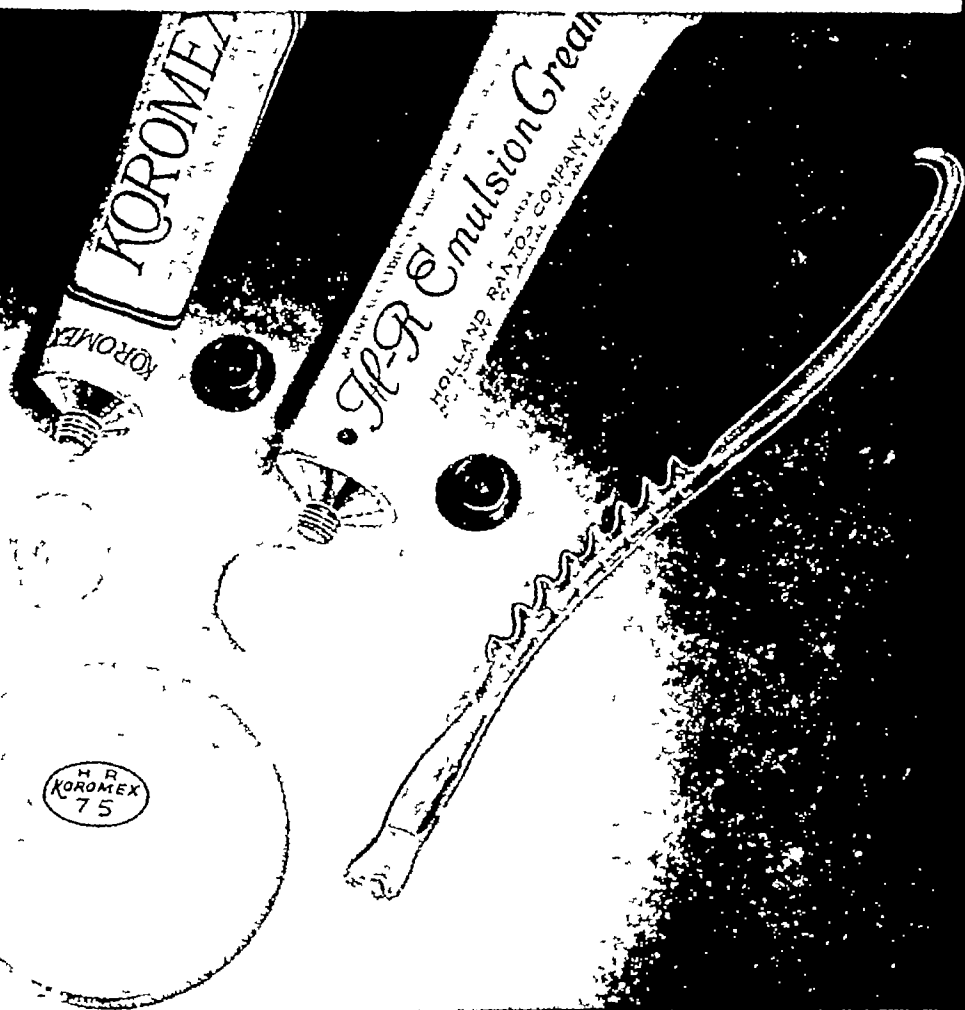
The Committee who will review the manuscripts is composed of men well qualified to judge the merits of the competing essays. Dr. Asher Chapman, of Rochester, Minnesota, received the Award for the year 1941 in recognition of his essay entitled "The Relationship of the Thyroid and the Pituitary Glands to Iodine Metabolism and Extrathyroid Iodine Metabolism."

A place will be reserved on the program of the annual meeting for presentation of the Prize Award Essay by the author if it is possible for him to attend. The essay will be published in the annual *Proceedings* of the Association. This will not prevent its further publication, however, in any journal selected by the author.

BACKED BY A RECORD OF OVER 16 YEARS

Koromex Diaphragms provide the most thoroughly tested, thoroughly proven diaphragms offered. *Koromex Jelly*, likewise proven in clinical use, is a thoroughly buffered lactic acid preparation. *H-R Emulsion Cream*, a contraceptive, supplies a minimum of lubrication. The new *Koromex Trip Release Introducer* facilitates use of Diaphragms.

Write for literature



*This is
"The Physician's Method"*

Holland-Rantos
Company, Inc

551 Fifth Avenue

New York, N Y

Woman's Auxiliary

To the Medical Society of the State of New York

THE fall executive board meeting of the State Auxiliary was held at Auburn, September 30 and October 1. It was a splendid meeting, with good attendance, 44 members were present. Twenty-two county presidents answered the roll call. Mrs. George B. Adams, state president, welcomed the visitors on their arrival at her home. A delicious dinner was given at the Owasco Country Club on Tuesday evening. The Cayuga County Auxiliary was hostess to the visiting board members. Guests were entertained in private homes and at the Springside Inn on Owasco Lake. On Wednesday the business meeting was held at Springside Inn, Mrs. George B. Adams graciously presiding. She extended greetings to all present, especially to the three new county presidents. Reports of all state officers, chairmen of committees, and county presidents were read and accepted. These reports evidenced an increase in membership and continued interest in the varied activities of the Auxiliary. We are honored to have in our group Mrs. John L. Bauer, the first president of the State Auxiliary and now first national vice-president. Mrs. Carlton F. Potter, first vice-president of the State Auxiliary, is a director on the National Board.

Mrs. Henry F. Pohlman, convention chairman, announced the New York State Medical Convention, which will be held in New York City at the Waldorf-Astoria on April 27, 28, 29, 30, 1942. Mrs. Alfred Madden is planning to have the county legislative chairmen visit a legislative session. Mrs. Carlton E. Wertz is striving for more members and for more county auxiliaries. Mrs. Louis A. Van Kleeck brought good news from the Physicians' Home. All of the guests have received a remembrance on their birthday. Mrs. G. Scott Towne is taking subscriptions for the *Bulletin*, and Mrs. Albert M. Bell presented many ideas for program material.

The board members are indebted to Mrs. George B. Adams and to the Cayuga County Auxiliary members for their generous hospitality and their splendid entertainment.

Mrs. Luther H. Kice, junior president and now serving as a director, has been appointed chairman of the Nassau County Mental Hygiene Committee.

On Program

"The Doctor's Wife in Defense" is the title of an article in the postconvention issue of the *Bulletin* of the Woman's Auxiliary to the American Medical Association. This article outlines a broad program of activity for state and county auxiliaries by means of fourteen well-thought-out procedures, beginning with the all-important admonition, "do nothing without the approval of your local advisory council," and continuing on current health problems, the study of nutrition, first aid, mental hygiene, and legislation.

As our programs are the tools with which we build the structure of an active organization,

we should make sure that we fully understand the use of these instruments. Tastes differ and what interests one member keenly, another feels not worth spending time on. Therefore, we must recognize all three types of program—educational, social, and economic. The value of a planned program, printed if possible and distributed to the membership at the beginning of the year, will be noticeable in the increased attendance at meetings.

In planning the program for any auxiliary the chairman and her committee should work closely with the committee on public health and public relations. These supply material for many interesting programs, and the public health services in the state are always ready to assist by suggesting topics and speakers.

Health has been called our nation's "first line of defense." In these serious days we Auxiliary members have an opportunity to take our places alongside the members of the medical profession, interpreting to the general public the full meaning and proper maintenance of fine physical and mental health. Let us determine to serve our country both in peacetime and in wartime. If the need arises, let us be fully equipped physically, mentally, and spiritually.

Mrs. ALBERT M. BELL

County News

Columbia. Mrs. George B. Adams, state president, was a guest at a luncheon, held at Rainbow's End, Valatie, on October 21, followed by a business meeting and social hour.

Jefferson. The opening meeting of the auxiliary was held at the Black River Valley Club, with Miss Marjorie Starkweather, Y. W. C. A. representative of the U. S. O., as the speaker. The wives of all medical officers at Pine Camp and Madison Barracks were invited.

Nassau. On November 25 the regular meeting of the auxiliary will be held at the Nassau Hospital Auditorium at 8:45 P. M. Dr. Legrand Kerr, of Brooklyn, will speak on "Dames, Doctors, and Dongs in the Drab Nineties."

Onondaga. The Auxiliary was happy to be given the opportunity of assisting in the plans for the luncheon given the members of Fifth District Branch held in the Terrace Room of Hotel Syracuse on September 23. Mrs. Leo E. Gibson was general chairman and was assisted by the following committee chairmen: Mrs. John Buettner and Mrs. Edward C. Reifenstein, hospitality; Mrs. Charles D. Post, luncheon; Mrs. John J. Hogan, tickets; and Mrs. Marcus D. Richards, entertainment.

A clever playlet, written by Mrs. Marcus Richards, was enacted by Mrs. Francis R. Irving, Mrs. Brooks McCuen, Mrs. Carlton F. Potter, Mrs. Tom Walsh, Mrs. Gerald Cooney, Mrs. Glendon Lewis, Mrs. Walter W. Street, Mrs. Henry H. Haft, Mrs. Albert Garofalo, Mrs. J. J. Derr, Mrs. Truman Wilcox, Mrs. John Hogan, Mrs. Neil Paul, Mrs. Herman L. Harding, Mrs. Joseph Delmonico, and Mrs. B. F. Colegrove.

[Continued on page 2172]

Hospitals and Sanitariums

Institutions of Specialized Treatments

THE MAPLES INC., ROCKVILLE CENTRE, L. I.

A sanitarium especially for invalids, convalescents, chronic patients, post-operative, special diets, and body building. Six acres of landscaped lawns. Five buildings (two devoted exclusively to private rooms). Resident Physician. Rates: \$18 to \$35 Weekly. **MRS. M. K. MANNING, Supt.** - TEL: Rockville Centre 3660



WEST HILL

West 252nd St. and Fieldston Road
Riverdale-on-Hudson, New York City

For nervous, mental drug and alcoholic patients. The sanitarium is beautifully located in a private park of ten acres. Attractive cottages scientifically air-conditioned. Modern facilities for shock treatment. Occupational therapy and recreational activities. Doctors may direct the treatment. Rates and illustrated booklet gladly sent on request.

HENRY W. LLOYD, M.D., Physician in Charge
Telephone Kingsbridge 9-8440

DR. BARNES SANITARIUM STAMFORD, CONN

45 minutes from N. Y. C. via Merritt Parkway

For treatment of Nervous and Mental Disorders, Alcoholism and Convalescents. Carefully supervised Occupational Therapy. Facilities for Shock Therapy. Accessible location in tranquil, beautiful hill country. Separate buildings.

F. H. BARNES, M.D., Med. Supt. *Tel. 4-1143

THE WAR ECONOMY

To date, comparatively speaking, war economies have not affected the daily existence of the average person. The full force of non-defense curtailments and priorities has not as yet created any serious hardships. But, unless the seemingly impossible at this moment occurs soon, there will come a day when we will all be faced with the problem of obtaining some of the necessities of life and business.

True, it becomes increasingly difficult to get materials and finished products without great delays in deliveries, but actually there is no shortage of things that are really necessary. The problem, as it now stands, is to anticipate our wants and requirements far enough in advance to assure receiving things by or before the time they are needed.

Mounting costs also suggest the advisability of order-

ing an ample quantity as far in advance as may be practical. While the government in good faith may be trying to prevent war profiteering in every field, in the face of mounting taxes it is inconceivable that such efforts can be wholly successful.

For those who have some used equipment to sell, now is the time to offer it for sale. The difficulty of obtaining new equipment and the higher prices, makes this period an opportune time to dispense with things at a profit that may no longer be required by, or useful to, an individual.

The classified columns of this JOURNAL provides an excellent contact with thousands of your colleagues each issue. The cost of a few lines is small, and you can never tell without trying whether or not a colleague would be interested in the item you have to sell.

TERRACE HOUSE for ALCOHOLISM

A private sanitarium offering a specific treatment for alcoholism formulated to relieve the craving for alcohol and with re-education working toward permanent abstinence. Homelike surroundings. Competent medical and nursing care. 16 miles from Buffalo.

Moderate rates—Enquiries invited

64 Maple St. - East Aurora, N. Y. - Phone 784

GLENMARY SANITARIUM

For individual care and treatment of selected number of Nervous and Mental cases, Epileptics and Drug or Alcoholic addicts. Strict privacy and close cooperation with patient's physician at all times. Successful for over 50 years.

ARTHUR J. CAPRON, Physician-in-Charge

OWEGO, TIOGA CO., N. Y.

LOUDEN-KNICKERBOCKER HALL, INC.

81 LOUDEN AVENUE

Tel. Amityville 53

AMITYVILLE, N. Y.

A private sanitarium established 1886 specializing in NERVOUS and MENTAL diseases.

Full information furnished upon request

JOHN F. LOUDEN

New York City Office

JAMES F. VAYASOUR, M.D.

President

67 West 44th St., Tel. VANDERBILT 6-3732

Physician in Charge



Say you saw it in the NEW YORK STATE JOURNAL OF MEDICINE

[Continued from page 2170]

Mrs. Edgar M. Neptune, the auxiliary president, greeted the guests and introduced the play.

The first fall meeting of the auxiliary was held at the Nurses' Recreation Hall of St Joseph's Hospital on October 7. Mrs. Grace Saunders, supervisor of cafeterias in the city schools, discussed nutrition and its effects. She described the breakfasts being served undernourished children in our community.

Mrs. DeAlton Ridings, president of the Woman's Auxiliary to the Syracuse Free Dispensary, outlined the work of the Dispensary, describing numerous ways in which our organization could assist that institution. We are outlining our work for the year now and this Dispensary is one of the fields we are hoping to work in. We will continue our collection of surgical equipment for Bundles for Britain and the Red Cross.

Mrs. Charles DeMong was chairman of the hostess committee for the evening, with Mrs. Frederick S. Wetherell and Mrs. Gerald Cooney as co-chairmen, assisted by Mrs. Albert Swift, Mrs. Brooks McCuen, Mrs. George L. Wright, Mrs. John Buettner, Mrs. Eugene N. Boudreau, Mrs. Dwight V. Needham, Mrs. Neal Conan, Mrs. Louis G. Fournier, Mrs. V. G. Van Ornam, Mrs. Francis Rosenberger, Mrs. George Raus, Mrs. William Pelow, Mrs. Thomas Walsh, Mrs. Raymond J. Devine, and Mrs. Joseph Thornton.

Oswego Members of the auxiliary opened their season with a luncheon at Hotel Pontiac, with Mrs. Harold F. McGovern, of Fulton, president, presiding. Plans were formulated for cooperating with Dr. Harwood L. Hollis, superintendent of the Oswego County Sanatorium at Orwell, in an effort to control tuberculosis. All boys and girls participating in athletics in high schools of the county are to be examined before being on teams. Plans were made for a fashion show to be held at the Pontiac Hotel on November 13.

Queens The Defense Health Forum, held at

the Medical Society Building on October 22, was an outstanding success. Dr. Thomas D'Angelo introduced the following speakers: Dr. Herbert R. Edwards, who spoke in the absence of Dr. John L. Rice, Dr. H. V. Z. Hyde, medical officer, Second Defense Area, Dr. Luvia Willard, chairman of American Women's Hospital Corps, and Dr. H. P. Menken, chairman, Medical Preparedness. A film, "In Defense of the Nation," was shown through the courtesy of Mr. Charles Freck, executive director of the Queensboro Tuberculosis and Health Association.

The first regular meeting was held on October 28, with Mrs. Michael M. Schultz, president, presiding. The speaker for the evening was Mrs. Elsie Stapleton, from Gumbel Brothers, whose topic was "Fun on a Budget." She was introduced by Mrs. William Lavelle, chairman of the program.

The Fall Dinner-Dance will be held November 15 at Hotel Pierre, Fifth Avenue, New York City. Mrs. Edward Veprosky will be in charge.

The Red Cross surgical groups and first-aid classes are still doing splendid work. Mrs. Thomas D'Angelo is in charge.

Warren On the motion of Mrs. E. B. Jenks, of the Bolton Road, the auxiliary voted at a meeting that all members collect physicians' discarded instruments and drug samples to be sent to the hospitals in Great Britain. Mrs. Leonard A. Hulsebosch reported on the executive board meeting held in Auburn. Plans for the fall were outlined in keeping with the purpose of the organization—to create closer cooperation in the community between the medical profession and the various civic and service groups. Emphasis will be placed on public health and nutrition and hygiene in connection with the community welfare, and work is being done for such groups as the American Red Cross and other service organizations. The meeting closed with a social hour and refreshments.

NEW YORK STATE SOCIETY OF PATHOLOGISTS

The annual meeting of the New York State Society of Pathologists was held on October 4 at the De Witt Clinton Hotel in Albany.

The following amendment to the Constitution of the Society was presented and carried unanimously: "that the Annual Meeting of the Society be changed to the place and date preceding the Annual Convention of the Medical Society of the State of New York, the specific time to be decided by the Executive Council."

The following officers were elected: president, Dr. Ward H. Cook, vice-president, Dr. Ward J. MacNeal, secretary-treasurer, Dr. M. J. Fein, Dr. Ralph Stillman and Dr. Walter S. Thomas were nominated and elected councillors to the American Society of Clinical Pathologists.

Dr. Ward H. Cook, chairman, has appointed a committee composed of Drs. Dalldorf, Marten, and MacNeal to join with the New York State Association of Public Health Laboratories to recommend the replacing of the coroner system by Medical Examiners.

"PETROLAGAR" CHANGED TO "PETROGALAR"

A change in the spelling of the name "Petro-lagar" to "Petrogalar" has been announced by the Petro-lagar Laboratories. The change is being made in both the product name and corporate name.

Company officials, while pointing out that the adoption of the new spelling does not affect the formula or quality of the product in any way, said that they considered the change advisable to avoid any possible misconception as to the nature of the product.

"Because it has never been the intention of the company to imply that agar-agar was used for any other purpose than as an emulsifying agent, the last syllable of the former name has been altered in favor of the new spelling," officials said.

Officials emphasized that no change has been made in the size of the package, price, or formulas and that each of the five different types of the product will carry the new spelling "Petrogalar." The new corporate name is Petrogalar Laboratories, Inc.

GIVE THE DOCTOR A BREAK

The Low-Down on Group Practice
and "Sickroom Charm"

by
Floyd Burrows, M.D.

Single Copies 10 cents
(Special Prices in Quantities)

"Money, Money for everything, but no
dollars for doctors"

PUBLIC RELATIONS BUREAU
MEDICAL SOCIETY OF THE
STATE OF NEW YORK

292 Madison Avenue
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COT-TAR PIX-LITHANTHRACIS 5%

- Therapeutically active in eczema
—particularly suitable in
children's eczema
- Forms a flexible non-peeling
coat of tar
- Can be removed with water or
cleansing creams
- Avoids staining of linen
- Causes no untoward irritation

Please write for sample
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DOAK CO., INC.
CLEVELAND, OHIO

WARTIME LITERATURE

Salute, a new magazine published by the British War Relief Society, discusses in one of its articles the merits of literature in wartime

"The criticism of books written during wartime," declares the publication, "must be concerned with the traditional problem of whether or not great writing can be achieved under the stress of great emotion."

While the article agrees that war conditions do stimulate creative ability, it feels that the emotions aroused are likely to be conflicting and violent, and, that there is inevitably a lack of perspective in writing about a war while bombs fall about the writer

"For these reasons," remarks the author, citing *All Quiet on the Western Front* as an example, "prose classics are likely to flower long after the war that inspired them." Poetry, however, fares differently and some of lasting value was composed during the last war within battle areas.

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Several serious problems face the nation's air transport companies these days, and the one that baffles them most is a solution to the "No Show" problem.

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The bad feature of this practice is the inconvenience it causes others who could have taken the plane. An empty seat might have been filled by a businessman on an urgent defense mission, or by an engineer rushing to a military post, or by a surgeon racing to an emergency operation. When flights are booked solid, it is rare when a seat reserved for a "No Show" could not have been filled by someone racing against time. And time is important to America today.

Thousands of businessmen, government officials, military leaders, and technical experts are dependent upon our fastest mode of travel, while the air lines must adhere to higher standards than before in spite of having their fleets depleted by the demands for military craft. Eliminating the "No Show" waste can help air liners and the general public alike.

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So if you are scheduled to fly at any time and something urgent causes a change of plans, make some attempt to notify the air line, even if it gives them only a few minutes to replace you as a passenger. There are often others who must make a last minute decision to fly and your cancellation will provide them the opportunity they might otherwise miss.

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WARTIME LITERATURE

Salute, a new magazine published by the British War Relief Society, discusses in one of its articles the merits of literature in wartime

"The criticism of books written during wartime," declares the publication, "must be concerned with the traditional problem of whether or not great writing can be achieved under the stress of great emotion."

While the article agrees that war conditions do stimulate creative ability, it feels that the emotions aroused are likely to be conflicting and violent, and, that there is inevitably a lack of perspective in writing about a war while bombs fall about the writer

"For these reasons," remarks the author, citing *All Quiet on the Western Front* as an example, "prose classics are likely to flower long after the war that inspired them." Poetry, however, fares differently and some of lasting value was composed during the last war within battle areas.

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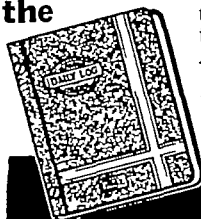
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NEW YORK STATE JOURNAL OF MEDICINE

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Editorial

The Bitter Fruit

It has come to pass that as this is written small groups of willful men are openly defying the authority of government in these United States on a question that has nothing to do with the preservation of human rights, at a time of grave peril, when the civil liberties of everyone in the nation will have to be abridged temporarily for the common safety.

The rebellion of this musled group follows by a little more than a month (September 17) the dramatic power strike in Kansas City which plunged 400,000 people into darkness and terror, and a mere six months after the strike of maids, orderlies, employees in the nurses' home, the engineering division, and the garages of the West Penn Hospital.

Why should medicine take editorial cognizance of these strikes? Because, at this writing, Mr John L. Lewis and Mr Westbrook Pegler's well-named "union-eers" have the power, if they wish to do so, to tie up this country's entire defense program unless they get just what they want. Furthermore, if they have no hesitation or compunction about doing this, how much less would they hesitate to disorganize the country's hospitals, ambulance services, and power supplies. This has, in fact, been demonstrated in the Kansas City outrage.

The extent to which the auxiliary services of the hospitals have already been unionized is not generally appreciated. The extent of communist infiltration of

the technical services of hospitals is also not generally known. It has been assumed that institutions of this humanitarian character would be immune from threats to, or attacks upon, the welfare of the sick, the maimed, and the dying.

Apparently, the assumption is without basis in fact. Apparently, the temper of Mr Westbrook Pegler's "union-eers" is such that they do not and will not concede the immunity of the Nation's defense program or the safety of its sick, maimed, and dying from ruthless, cynical, and at times violent, attack. There is little to be anticipated from public authority, seemingly, beyond the soft word. The entire legislative structure, both federal and state, respecting labor has been, and now is, set up in a manner which, in operation, encourages the exploitation of the defenseless, both in the hospitals and throughout the Nation.

This fact is of grave concern at least to medicine, for much of medicine's ability to function effectively and efficiently in our so-called industrial civilization is dependent upon the continuity of services that lie within the domain of labor. The right of labor to strike does not in our view of constitutional liberties include the right to strike at the welfare of the helpless or to hold them as hostages to the settlement of jurisdictional disputes and irresponsible rapacity.

For the healthy to have to eat the bitter

fruit of unwise government policy toward industrial problems is bad enough, but that the sick, the maimed, and the dying should be compelled in their helplessness to have to eat it too, and to wash it down with the sour wine of their impotence in

darkness, in terror, in fear, is the last insult of a truly decadent way of life.

Is there no courage in our legislators which, in the name of God, will place the necessities of the sick above the loss of a few votes?

The Missionary Spirit

The American Association for Social Security, which is sponsoring a "health insurance"¹ bill introduced in Washington by Senator Capper, is ably represented by Mr Abraham Epstein, its executive secretary

Mr Epstein now, as in the past, is engaged in selling government "health insurance," federal and/or state. It is his life's work. He gets around. On October 10, 1941, he got around to the convention of the New York State Osteopathic Society. There he spoke. Said he, in part "It is fortunate that the leadership of the New York State Osteopathic Society has had the vision, *still lacking in the New York State Medical Society*,² to realize that constructive programs of social action along the lines of providing medical care can only help the physicians as well as the nation. To continue to ignore the problem of sickness when it is known that it is the greatest cause of poverty, is social negligence bordering on the criminal. It is obviously suicidal to permit our people to go without adequate medical care merely because they cannot afford to buy such care individually and unaided."

The Medical Society of the State of New York will doubtless be gratified to learn that Mr Epstein has reserved, if he has been correctly reported, a place in his commodious doghouse not only for the Medical Society but for the United States Treasury as well. He is said³ to have charged "the medical profession with blocking extension to its field of the social security program," and "attacked the United States Treasury Department on

the ground that it thought of the existing social security set up in terms of revenues rather than benefits"

Mr Epstein, though not yet so colorful, is rapidly acquiring the technique of salesmanship long exemplified by Mr Harold Ickes. We shall probably hear more of him as time goes on. He is selling an idea—government "health insurance"—which more and more people are inclined to think of as a *sickness tax*. It may be that this aspect of the matter accounts for the reluctance of the Medical Society of the State of New York to embrace Mr Epstein's current and past enthusiasm. The Society is not interested in sales campaigns. It is concerned now, as in the past, not with the peregrine promotion of a government sickness tax but with workable and forthright plans to provide the best possible medical service to the greatest number of people. The Medical Society of the State of New York has the vision, still lacking in diverse nonmedical groups regrettably, to see that before the best medical service can be made widely available to the public it is necessary to have a sufficient quantity of the best kind of doctors to provide it.

The possession of a certain amount of vision, in the evangelical meaning of the word, need not blind anyone to practical, common, or horse sense. The world cannot get along without the evangel. His enthusiasm, his energy, his penetration of far places, his unflagging endurance and, in the case of the urban evangel, his iron digestive tract capable of withstanding the continual assault of dinner after hotel dinner compel the admiration of lesser clods. And yet

¹ Sickness tax. Ed.

² Italics ours. Ed.

³ New York Times, October 11 1941

There remains the necessity to deal with cold, hard, inescapable fact. It is often wearisome, we admit, and unsensational. But it is our business. Our "constructive program of social action" consists, first, in assuring to the people of the state the largest number possible of thoroughly trained, well-educated physicians and, second, in providing the means and the opportunity for keeping them well informed by a state-wide program of post-graduate education. At the moment, a large proportion of the younger members of the profession are serving the government. The remainder are caring for the medical needs of the civilian population in the only way that has yet proved to be practical—namely, by painstaking attention to one case at a time, day after day. Prosaic, but practical.

True, all this has to be paid for. Physicians, like anyone else must have some means of support, even in this pleasant Utopia in which as a Nation we have attempted to isolate ourselves. Something for nothing is still comparable to perpetual motion in fact, if not in sales talks. That is probably why the United States Treasury Department, which Mr. Epstein exonerates, has finally found its way into his doghouse. It must think in terms of revenues before it can begin to

think in terms of benefits, being charged with the financing of a social security program.

It occurs to us that, beginning now, a great many people are commencing to worry, not about the certainty of ultimate death but about the certainty of proximate taxes. This same hard-boiled attitude of the Treasury Department, so obnoxious to the evangelical Mr. Epstein—namely, the securing of adequate revenues—will be reflected in the citizen-taxpayer's 1942 tax bills, in his pay envelope, in the hidden levies on everything he needs.

Mr. Epstein's task of selling a government sickness tax¹ now to a citizenry already faced with a one hundred billion dollar debt, increasing at the rate of ten billions a year, to a citizenry now faced with enormous taxes and surtaxes, to a citizenry now awakening to the fact that such a government sickness tax⁴ could only be administered by a huge, expensive bureaucracy of still more tax eaters makes the job comparable to that which the *New York Times* itself has undertaken in a similar evangelical spirit. We do not see eye to eye with Mr. Epstein, but we recognize courage when we see it, even if it be the valor of enthusiasm.

¹ Often referred to as Health Insurance.

Rehabilitation

On October 10, 1941, the President announced plans for "rehabilitating 200,000 of the 1,000,000 youths who have been rejected for military service because of physical or mental deficiencies."¹

This plan has been adopted on the basis of a report to the President made by Brigadier General Hershey, director of the Selective Service System. It is a workable plan. It has been in operation as a pilot experiment in the Second Corps Area under the direction of Colonel Arthur McDermott, director of Selective Service for New York City, and under the supervision of Colonel Samuel J.

Kopetzky. It follows sound principles. It has adhered to facts and has been designed in such a way as to bring to light certain basic data about which, to date, little has been known and much has been asserted.

The program "will apply immediately to the 200,000 who were certified by local draft boards as susceptible of physical rehabilitation for the Army. Local physicians and dentists will give the treatments, for which the Federal Government will pay as part of the cost of national defense."¹

We are of the opinion that this is the proper approach to an eventual improve-

¹ *New York Times* October 11 1941 p. 1

ment in the national thinking as well as the national well-being. It has been made possible by an emergency which produced the Selective Service System, a realistic application of the democratic process, free from political considerations and concerned solely with the common safety. As such, the program must be supported wholeheartedly by the medical profession and should be given every encouragement by the public.

It involves a concept difficult for the man on the street to grasp unless it is presented simply and unless it is kept simple and straightforward. Of this concept Dr S J Kopetzky² said "Educational campaigns are not enough to make the obvious remedy to solve the problem practical. The concept that every citizen has an obligation to perform his military duty should be strengthened. A law

which makes it compulsory for the citizen to perform a year's duty in the armed forces of the country should be broadened to prevent remediable defects from deterring men from carrying out this obligation of citizenship." Later, on August 15, 1941, the Commission on Physical Rehabilitation, headed by Dr George Baehr of Columbia University, recommended to Mr Paul V McNutt, Federal Security Administrator, a government-financed program of voluntary physical rehabilitation of rejected selectees. Of this recommended plan Mr McNutt said, in part "While the program is directed primarily toward making more men available for military service, it has far greater implications for the future public health of the country, particularly in relation to the opportunities for the replacement of these registrants into civilian pursuits after the emergency is over."

This is common sense, it is the kind of hardheaded thinking which, simply stated, should appeal to the man on the

street. It is something he can understand, devoid of political or emotional obliquity. It is fair. The government contributes something, the physicians contribute something, the public contributes something. The public safety is secured and the public well-being is enhanced.

It seems to us unfortunate that in its write-up the *Times*¹ should have chosen to state in the subhead of the article "President Tells Rehabilitation Plan and Says Our Health Conditions Indict America." It seems to be true that Mr Roosevelt said "he considered the existence of the conditions revealed by the Selective Service examinations as an indictment of America." A little farther on, the news story states "Of those rejected under the Selective Service Act, 100,000 were found mentally unequipped for service, since they did not have the equivalent of a fourth-grade education."

Just how this is related to our health conditions is not clear. It is not explained. It does not appear to be related to the rehabilitation program. It is further stated "Of the approximately one million rejected, 900,000, or about 90 per cent, were found to be physically or mentally unfit." But it is seen that on the breakdown of the figures 57,000, or 6.3 per cent only, were rejected for mental and nervous diseases per se. The larger number, 100,000, were rejected because of insufficient educational equipment or educational capacity, aside from any question of mental disease or other physical handicap.

Because of the apparent irrelevancy of these figures and the false impression they tend to create, we repeat that it is unfortunate in our view that they should have been, so to speak, dragged in by the ears to becloud the straightforward issue of the rehabilitation of about 200,000 men with assorted but remediable mental or physical defects.

¹ Kopetzky, S J. New York State J Med. 41 No. 14, 1487 (July 15) 1941.

THE SIGNIFICANCE OF MUSCULAR BALANCE IN ACUTE DISORDERS OF POSTURE AND LOCOMOTION*

HENRY H JORDAN, M D , New York City

THE significance of pathologic conditions of the musculature in acute disorders of posture and locomotion has not been sufficiently recognized. In a considerable number of so-called minor ailments, seen in everyday practice by physical therapists as well as by orthopaedic surgeons, the purely muscular nature of the pathologic condition is often not diagnosed. Consequently, the treatment may not be the most efficient and the rehabilitation of the patient is either delayed or not achieved. Then, patients belonging in this group frequently turn for help to osteopaths or even chiropractors. It is exactly in the conditions to be discussed in this paper that manipulative treatment by an osteopath is often successful, casting an unfavorable reflection on the medical profession. It seems, therefore, timely to analyze and discuss acute disorders of locomotion and posture caused by disturbance of the physiologic balance between agonists and antagonists or between bilateral synergists. These conditions, if properly diagnosed, would yield readily to our treatment, as a matter of fact, these are most gratifying cases for both specialties, orthopaedics and physical therapy.

A classic example of such an acute muscular disorder is represented by the so-called spastic or rigid pronated flat foot, with its characteristic sequence of events.

A patient comes to the office walking with a marked limp and complaining of severe pain on weight-bearing in one foot. He states that he has had occasional foot trouble and that he has previously tried various types of foot plates and orthopaedic shoes with more or less success. But today, while going down the subway steps, he apparently turned his foot and, since then, has had severe pain that made weight-bearing almost impossible. Examina-

tion shows no symptoms of an acute trauma, no swelling, and no discoloration indicating hematoma. While the unaffected foot presents a moderate degree of pes plano valgus, freely movable in all directions, the painful foot is completely rigid in a position of supination. Active movements of the foot in the direction of pronation and supination are impossible, while a certain degree of dorsiflexion and plantar flexion may still be present. An attempt at passive motion of the foot from the position of extreme supination to normal alignment and pronation fails. The foot is so stiff that bony ankylosis is simulated. The metatarsus follows the tarsus rigidly into marked supination and cannot be pronated. In the upright posture the first metatarsal bone and the great toe do not touch the ground. Weight is borne on the heel and the outer border of the foot only. The tendons of the tibialis anticus and tibialis posticus muscles are conspicuously prominent. These muscles are maximally contracted, they are hard and painful. Pain in the foot may be so severe as to suggest an acute inflammation. Apart from the pain, however, the other classic symptoms of inflammation are absent. Roentgen examination may be completely negative, especially in younger patients. X-rays may, on the other hand, show osteoarthritic changes, for instance, in the region of the scaphoid or the first metatarsophalangeal joint. On the basis of such x-ray findings the acute painful condition may be diagnosed as arthritis, misleading for treatment.

Let us analyze what has actually happened to this foot. For months or years both feet have been in plano valgus position—that is in faulty static alignment with regard to the center axis of gravity in standing and walking. In the upright posture, for instance, the plumbline from the center of the hip joint through the center of the knee joint and of the ankle joint did not hit the ground through the center of the heel as is normal.* The valgus position places the heel laterally to the center axis of gravity. This faulty static alignment, which presents itself in innumerable cases, is mechanically unsound. The body weight is not properly supported by those elements of the foot which are built to take up the axial

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 29, 1941.

* This paper is, in the last analysis, based upon the research and teaching of Hans von Baeyer. Von Baeyer has given us in countless contributions a new and stimulating realization of the role that the musculature plays for man's posture and locomotion. The influence of his teaching on the rational treatment of their disorders cannot be overrated.

The shadow of Nazism fell on the last years of his life. He died in his Fatherland but exiled from the great institution he had created. On January 22, 1941 a coronary occlusion put an end to von Baeyer's work.

compression stresses. As a result, the auxiliary soft tissue structures—namely, the muscles with their tendons and the ligaments—are forced to participate to an abnormal degree in the transmission of compression and tensile stresses. The ligaments offer considerable passive resistance but gradually become overstretched, the faulty static alignment becomes worse. When the ligaments give way, opposing articular surfaces lose their normal relation and become incongruent. Incongruence of articular surfaces interferes with normal function and renders it painful, especially under weight-bearing. Such pain calls for reflex action of the muscles. They try to restore normal alignment to avoid strain on the ligaments and incongruence of the articulations. As a result, these muscle groups are under abnormal strain and become fatigued. Waste products of muscle metabolism accumulate with the sequelae of pain, changes in circulation, and malnutrition.

The flexibility and adaptability of the foot required in the various phases of standing, walking, running, climbing, and jumping entail a considerable degree of skeletal instability below the ankle. The lower leg and foot muscles must guarantee functional stability where the skeletal stability is lacking. This purpose is achieved through the physiologic balance mainly between the lateral group of the peroneal muscles and the medial group of the tibial muscles. Both muscle groups cooperate under normal conditions to maintain the correct static alignment of the foot for optimal support of the body weight in all phases of standing and walking. With the heel in valgus position, weight-bearing causes abnormal strain on the medial structures at the ankle. In order to maintain correct alignment the tibial group must make greater efforts, while the peroneal group is relaxed. If this condition prevails for some time, the equilibrium between the two muscle groups is definitely disturbed. At first, the patient will note fatigue and pain in the tibial muscles, then comes the point where these muscles, overworked and suffering from accumulation of waste products and lack of nourishment, suddenly contract with a last spastic effort, pulling and holding the entire foot in an unphysiologic position of total supination. The onset of this final stage of chronic damage to this muscle group comes suddenly, resembling an accident. One may assume that a minor incident during walking—for instance, an unevenness of the ground—added to the imbalance already present, has furnished the

last straw. We now have the picture of an acute disorder of both posture and locomotion caused by a disturbance of the physiologic balance between pronating and supinating muscles.

If we recognize the characteristic picture of an extremely painful, completely rigid flat foot as the result of a disturbance of the equilibrium of the muscles controlling the position of this foot, the first aim of our treatment must be the restoration of the physiologic balance. Relaxation of the spastic or contracted muscle group is the logical requirement. This can be achieved in many ways. We will select those measures that restore muscular balance and, consequently, painless function of the foot with a minimum expenditure of time and energy. Relaxation would be readily accomplished by general anesthesia, which, however, is indicated only if major surgical procedures are intended.

Quick and complete relaxation of the spastic muscles in a rigid foot is obtained by local anesthesia if properly applied. There are two methods of using local anesthesia for this purpose. One consists of injections of novocain into the ankle joint. By the other, which in my experience is more effective, the affected muscle groups are infiltrated with novocain.⁵ I inject up to a total of 100 cc of a 0.5 per cent solution without epinephrine at three or four points into the spastic muscles. After a period of from ten to twelve minutes, anesthesia becomes effective, the tibial group is relaxed, and the foot can be brought back into normal alignment.

It is also possible to overcome the rigidity of the foot without anesthetics. In selected cases skillful manipulation may restore the muscular equilibrium with immediate relief of pain and spasticity, especially if we have succeeded in distracting the patient's attention. When we state that manipulation alone under favorable circumstances can restore the muscular balance, we must emphasize at the same time that it is not a manipulation of displaced joints or slipped articulations as claimed by osteopaths, what actually happens in a sudden stretching and relaxation of the contracted muscle group which accounts for the sometimes spectacular result.

Between the two extremes of general or local anesthesia on the one side and manipulation on the other, practically all modalities of physical therapy may be used to obtain the desired result. Rest, heat, and histamine iontophoresis are among the most effective. Restoration of physiologic balance between

pronating and supinating muscle groups on the foot cures the acute disorder of the painful, rigid flat foot. It does not, of course, remove the underlying cause of the disorder, and additional therapeutic measures are necessary to correct permanently the faulty static alignment and to eliminate its effect on all the structures that have suffered from the strain of abnormal weight-bearing.

It is not within the scope of this paper to discuss in general differential diagnosis and treatment of pathologic conditions of the foot. I have used the well-known picture of a painful, rigid flat foot merely as a classic example for the significance of muscular balance in acute disorders of posture and locomotion. The course of events, described for the development of the painful, rigid flat foot and its logical treatment, applies to similar conditions in other regions of the body, especially in the back.

I shall now discuss the back in reference to acute disorders of posture and locomotion. Backache of muscular origin is of greater importance than the disorders of the foot. It occurs much more frequently, and entails, as a rule, prolonged disability with all the implications including the significant economic factor. Its great tendency to recur is only too well known. Furthermore, the nature of muscular backache is not readily understood and, as a result, treatment may be inadequate.

A survey of the current literature shows a flood of publications on the subject of low back pain and of the injured back and its treatment.^{2,4} There is no doubt that an acute attack of disabling pain in the back may present one of the most puzzling problems for differential diagnosis. As far as I can see the chief interest in this subject in recent years has been focused on the discussion of two aspects of the manifold problem.

1 On the role of the intervertebral disk and its herniation, which seems to occupy a prime position in the considerations of orthopaedic and neurosurgeons.

2 On the slipping or displacement of the sacroiliac articulation. This hypothesis has found more attention on the part of the physical therapists under the noticeable influence of osteopaths who claim to cure the acute painful back by manipulation of slipped articulations. The possibility of the purely muscular origin of an acute disorder of the back has attracted little attention. This is showed by the fact that the term "acute lumbago" is rarely used nowadays, while a

diagnosis of sacroiliac syndrome, sacroiliac dislocation, lumbosacral arthritis, sciatica, etc., is favored.

To prevent misunderstanding I should like to emphasize that an acute attack of low back pain may be caused by a great variety of pathologic conditions, in many instances, differential diagnosis is difficult and requires the aid of medical, surgical, urologic, gynecologic, and neurologic examinations. It has been my experience, however, that the incidence of purely muscular disorders causing acute back pain is much higher than is generally recognized, and this statement is borne out by the result of the treatment. It is therefore worthwhile to study the back conditions under discussion from the same point of view as we have done in the first part of this paper for the rigid flat foot.

The typical picture of an acute attack of lumbago is well known. A man sitting at his desk in a swivel chair, reading a newspaper, bends over to the right to pick a section of the paper from the floor. He experiences a sudden sharp pain in the right lumbar region and is unable to resume the erect posture. With difficulty he gets up from his chair, supporting himself with his arms, his trunk is shifted and bent toward the right side, and an attempt to straighten up fails. Pain may or may not radiate down to the right leg. Every movement is painful, even coughing or sneezing causes a pain in the right lumbar region. Examination shows that the trunk is shifted toward the right side over the pelvis, the lumbar lordosis is flattened out or reversed into kyphosis. The right lumbar erector spinae muscle group is conspicuously prominent and markedly rigid. A straight leg raising test shows a positive Lasegue on the right side, it may also show a hamstring spasm on the left side with pain referred to the right lumbosacral region. The patient may localize his pain over the right sacroiliac joint and not in the region of the spastic lumbar muscles.

Regardless of the origin of the pathologic condition, this patient presents the picture of an acute disturbance of the physiologic balance between the right and the left lumbar erector spinae muscle groups. In this case we have a unilateral disturbance. In other instances the lesion may be bilateral or symmetric. A bilateral attack of acute lumbago occurs for instance when a person standing at the washbasin bends forward while brushing his teeth. When attempting to resume the erect posture he feels a sudden sharp pain in the back, as if struck by lightning, and he is

unable to straighten up Examination shows lumbar kyphosis, marked spasticity of the bilateral erector spinae muscles and, frequently, a boardlike rigidity of the abdominal muscles The disturbance of the physiologic balance between muscle groups acting on the spine concerns the erector spinae muscles posteriorly and the iliopsoas and abdominal muscles anteriorly⁷

We are now concerned with a painful and disabling disorder of posture and locomotion of the spine due to an acute disturbance of the physiologic balance between bilateral synergists (in the case of the unilateral lesion) or between agonists and antagonists (as in the bilateral lesion) The picture is similar to the one presented by the acute spastic flat foot Restoration of the physiologic equilibrium between the affected muscle groups is the first and logical aim of our treatment This requires the application of measures that will effect a complete relaxation of the spastic or rigid muscle group Before discussing the modalities of treatment which have proved most useful for this purpose, I should like to discuss the nature of the muscular disorder

Man's erect posture and the multitude of static and dynamic functions of the spinal column depend to a large extent upon the function of the muscle groups that act on the spine and control the postural relation of the spinal column and the trunk to the "closed chain" of the pelvis and the lower extremities A weakness of the lumbosacral region is, generally speaking, the price we still have to pay for the privilege of the erect posture Man's adaptation to the erect posture is not yet complete as is showed by the many skeletal variations that occur in this region The greater the individual instability at the lumbosacral junction, the greater are the demands made upon the musculature Analogous to what we have seen at the ankle, here, too, skeletal instability requires muscular stabilization. Although nature has endowed the human body with an admirable system of reserves and safety devices in order to maintain the physiologic functions even under adverse circumstances, it is readily understood that the imperfection of human nature accounts for frequent disorders The lumbar musculature bearing the greater part of the burden imposed by the erect posture is prone to fail under undue strain, especially in certain types of individuals Muscles are under abnormal strain whenever there is a discrepancy between their functional capacity and the demands made upon them. If the muscles

are normal, their physiologic balance will be disturbed by abnormal demands These may be due to intrinsic and extrinsic causes The latter are (1) overexertion from heavy physical labor or athletics, leading to muscular fatigue, and (2) trauma, causing tear of muscle fibers and hematoma

Among the intrinsic causes defective posture plays the predominant role because it entails habitually strained muscles and a lack of balance of the bones at the joints Von Baeyer¹ has pointed out that posture is the status present at the beginning and at the end of motion The essence of posture is physiologic balance or equilibrium If there is no equilibrium, there is motion Physiologic posture requires a minimum of muscular effort Active contraction of muscles means increased metabolism, physiologic muscle tone does not Defective posture necessitates constant muscle action, leading to muscular fatigue and an accumulation of waste products Next to defective posture we have to mention pathologic conditions of the skeleton which may increase the demands made upon the musculature This will be the case in symmetric and asymmetric deformities—e.g., a gibbus of the dorsal spine or a fixed scoliosis disturbing the physiologic balance between the bilateral synergists acting on the spine—and in spondylarthrititis or spondylosis where the muscles are called upon to immobilize the diseased parts of the skeleton to avoid pain Finally, we must list pathologic conditions of the viscera and the central nervous system which lead to "muscular defense" to prevent pain The common denominator of all the conditions mentioned is that they place an undue strain on normal muscles, leading to an unphysiologic condition of these muscles and preparing for the occurrence of an acute attack of lumbago

On the other hand, we must consider pathologic conditions of the musculature proper which make it unfit even for physiologic demands made upon it Such conditions are general weakness of the musculature, constitutional or conditional, and diseases of the muscle fibers or the interstitial tissues, e.g., myositis or myositis ossificans Exposure to cold and humidity undoubtedly has a detrimental influence on the physiologic function of the muscles We must consider among this group, also, the results of many of the intrinsic and extrinsic causes mentioned above which lead to undue strain and which eventually impair the physiologic function of the affected muscle groups.

At this point I should like to discuss the so-called "myogeloses."

The term myogelosis* was introduced by Fritz Lange and Heinrich Schade in 1921, describing a pathologic condition of the musculature characterized by painful hard nodules in the muscle fibers. These two authors, working independently, believe that myogeloses present a distinct pathologic entity and that the palpable changes of the muscle fibers are organic in nature. They have not been able to prove the exact nature of these pathologic changes. Histologic examination of excised nodules was negative. The chief objective criteria for the existence of myogeloses were a determination of the circumscribed induration in the muscle with the aid of the sclerometer. Myogeloses do not disappear in deep general anesthesia, and they remain palpable postmortem for approximately ten hours until rigor mortis has occurred (Schade). From these observations both authors concluded that myogeloses are not circumscribed spasms of muscle fibers but organic changes, very likely colloid-chemical in nature. A detailed discussion of the myogelosis problem will be the subject of a later presentation.* It may suffice to state that myogeloses are frequently found in the pathologic conditions of the musculature presented today. As a rule, they respond well to treatment—not only to the deep massage or gelotripsy recommended by Lange and Schade but also to histamine and other modalities of physical therapy.

An acute attack of lumbago occurs most frequently when a sudden uncontrolled motion puts an additional strain on a muscle group that already has been taxed to capacity for one or several of the reasons mentioned. A slight disturbance of the physiologic equilibrium, insufficient to interfere with the function of normal muscles, furnishes the last straw, the strained muscle group contracts with a last spastic effort, and the muscular balance of either bilateral synergists or of agonists and antagonists is finally deranged. This necessarily leads to a shift in the relations of the pertinent sections of the skeleton, hence, the common assumption that a displacement or slipping of one or several joints has occurred. Because pain in an acute attack of lumbago is frequently referred to the sacroiliac rather than to the lumbosacral region or the lumbar muscles, osteopaths and their

followers have established the routine diagnosis of a sacroiliac sprain or dislocation. There is not time to discuss the anatomy and physiology of the sacroiliac articulations and to explain why it is my firm conviction that a displacement of the sacroiliac articulation is highly improbable, if not impossible (with rare exceptions in the case of severest trauma). It may suffice to state that the manipulative procedure carried out by osteopaths and by some orthopaedic surgeons frequently is successful because it restores the muscular balance of the erector spinae muscles. We fully agree with regard to the classic symptoms of an acute attack of lumbago and with the possibility of immediate relief of the patient's suffering and a restoration of the physiologic balance of the affected muscle groups through adequate manipulative procedures. We do not agree with regard to the conception of the underlying pathologic condition and the name with which it is labelled.

The rationale of the treatment of the acute disorder of posture and locomotion caused by an acute attack of lumbago is essentially the same as outlined for the spastic flat foot. Complete relaxation of the spastic muscle group is a prerequisite for restoration of muscular balance. Among the various therapeutic modalities that could serve this purpose, I should like to mention two that in my experience have proved to be most efficient, while at the same time their application is simple and safe.

Since its introduction by Deutsch,² of Budapest, in 1931, I have made the most extensive use of histamine iontophoresis in the treatment of many pathologic conditions of the musculature, especially those characterized by muscular rigidity and myogeloses. Histamine treatment alone or in combination with other modalities of physical therapy is the treatment of choice for a majority of cases of acute lumbago. I use a histamine solution 1:10,000 and a galvanic current of 6 milliamperes for six minutes per field of application. Histamine is applied not only to the spastic lumbar muscles but to the entire back and the gluteal muscles and, occasionally, to the posterior aspect of the thigh. In some instances the first treatment brings a dramatic relief, in more severe cases treatment must be repeated on the following days. As a rule, three treatments suffice to restore the muscular balance of the erector spinae muscles and to enable the patient to resume his occupation.

Injectations of novocain into the muscles as

*"Myogeloses. The Significance of Pathologic Conditions of the Musculature in Acute Disorders of Posture and Locomotion," read before the American Congress of Physical Therapy Washington, D. C. September 4, 1941.

recommended for the treatment of the spastic muscles in the rigid flat foot have not been so effective when applied to the lumbar muscles. I have discarded the use of novocain injections in favor of the histamine treatment. During the past two years, however, I have availed myself of a new type of injection which was recommended by Tarsy¹⁰ for the conservative treatment of low back pain.

Two cubic centimeters of "eucupin" in only solution, a bactericidal local anesthetic of low toxicity and prolonged analgesic action containing 2 per cent iodine, are injected deep into the lumbar erector spinae muscles with a $1\frac{1}{2}$ -inch, 22-gage needle. The needle is inserted vertically to its hilt at a point slightly proximal to the tip of the transverse process of the fifth lumbar vertebra. If no blood is aspirated, $1\frac{1}{2}$ cc are deposited. During the injection of the last third of the solution the needle is gradually withdrawn. The lumbar region is then subjected to a vigorous massage. A few minutes after the injection prompt relief of the muscular rigidity is noted and the muscular balance may be restored. This type of treatment is especially suitable in cases of unilateral lumbago, where pain is localized in the lumbar erector spinae muscles rather than referred to the sacroiliac region. The injection may, of course, be supplemented by the various modalities of physical therapy and it may be repeated after two or three days.

Histamine iontokataphoresis and eucupin injections thus represent, in my experience, the preferred treatment for the acute attack of lumbago. It is, of course, not sufficient to treat the acute symptoms only. Most of these patients require not only a complete and careful examination in order to determine the underlying pathologic changes responsible for the acute disorder. They also require prolonged aftercare after the acute symptoms have disappeared and prophylactic measures to prevent a recurrence, which is so common in the conditions characterized by a disturbance of the physiologic muscular balance. The discussion of this phase of the treatment is beyond the scope of this paper.

A word may be added with regard to injections into the sacroiliac region. In selected cases where the lower back pain is connected with a radiation of sciatic distribution, injections of a 2 per cent filtered solution of iodine in alcohol into the sacroiliac region of the affected side has given good results. The injection is carried out with a 1-cc tuberculin syringe and a 3-inch, 22-gage needle. The

technic is not easy. With the patient in the prone position the needle is inserted $\frac{1}{2}$ to 1 inch lateral to the median line at the level of the proximal margin of the sacroiliac articulation. The needle is introduced in a direction toward the anterior superior spine of the same side. When the needle penetrates through the strong and tough ligamentous structures on the posterior aspect of the sacroiliac articulation, a definite resistance is felt. After this is overcome the needle comes in contact with bone, it is slightly withdrawn and from 0.2 to 0.4 cc of the solution are deposited. At this moment the patient experiences a sharp pain that frequently radiates down to the knee. The needle is then withdrawn, and the patient is allowed to get up after a short period of rest in a recumbent position.

This type of sacroiliac injection has a definite place in our armamentarium, provided the suitable cases are properly selected and the technic is correct. I have learned this method, which apparently has not been published, from Walter I. Galland and have used it for more than six years with good success. It is not quite easy to give a satisfactory explanation for its action. I believe that the small amount of iodine deposited in the midst of the network of nerves in the sacroiliac region causes a marked and prolonged reflex hyperemia throughout the entire distribution of these nerves.

Summary

A considerable number of acute disorders of posture and locomotion are of purely muscular origin. They are characterized by a disturbance of the physiologic equilibrium between muscle groups that function as agonists and antagonists or as bilateral synergists.

The spastic or rigid flat foot and an attack of acute lumbago serve as typical examples for the significance of muscular balance in acute disorders of posture and locomotion. The recognition of the purely muscular nature of such disorders shows the way to efficient treatment. Histamine iontokataphoresis and injections of eucupin into the spastic lumbar muscle group are recommended for the treatment of the acute disorders of the back. Iodine-alcohol injections into the sacroiliac region are of considerable value in selected cases with sciatic distribution of pain. Novocain injections into the spastic tibialis muscles lead to the restoration of muscular balance in the rigid flat foot.

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THE CHOICE OF A BOY OR GIRL

"The newspapers and popular magazines have heralded the announcement that science can fix the sex of babies. One must view this from different standpoints. Will the possibility which is implied add to the world's troubles or, by making certainty out of uncertainty, contribute anything to happiness? Prospective and potential parents naturally have an interest in the claim that the sex of their young hopeful can be made to order and that they may have a girl baby or a boy baby according to individual preference or desire," writes Dr. George W. Kosmak in *Maternity Center Briefs*.

"The glowing accounts of what has been accomplished by experiments in the laboratory with rabbits and rats does not mean that such results are readily transferred to human beings or that isolated instances of a boy or girl baby, according to desire, prove the truth of the theory that the choice may easily be achieved by acid or alkaline diets. And if you could control the matter in such a simple fashion, would it in the end be wise? The beautiful uncertainty whether the coming baby is a boy or a girl has its advantages. Father may have his heart set on a boy and mother may prefer a girl. But mother, according to the new pronouncement, can control the situation by drinking an abundance of bicarbonate of soda or of lactic acid "cocktails," according to directions. Her personal wishes would be fulfilled, father to the contrary notwithstanding.

"No, it were better to let Nature decide. She seems to have maintained a satisfactory proportion in the past between the two sexes, and we had better continue to let her have her way. People must remember that in such matters individual preference counts for little in the

natural scheme of things. And, I repeat, would there be any real gain if we had our way in such matters? Nobody in authority has dared to say so for the simple reason that conscientiously they can't. It were better if all of these speculative theories were set aside and more attention given to the production of healthy babies, be they boys or girls.

"Either John or Jennie should be welcome. As the final outcome is surrounded with so many uncertainties, the failure of mother to bring forth the expected kind of baby will lead to incrimination and disappointment, and of what use is it all? Any normal, healthy baby should be welcomed, whether it be boy or girl. The world needs both."



"Old Dame Nature's not going to put anything over on us this time!"

AIN'T IT AWFUL?

From the Dallas (Texas) News

Docile Germs Provide Thief Perpetual Alibi

Because he is a recognized typhoid carrier, a 16-year-old Negro boy has become the problem child of Dallas County juvenile authorities. He can steal with impunity, since no jail or reformatory will accept him because of the danger of a typhoid epidemic.

The youth, who has been three times released from Gatesville reformatory because he endangered other inmates, was arrested again

Saturday for stealing a bicycle. He told R. R. Harvill, bicycle theft officer, where the stolen bike could be found, readily admitting prowling several cars recently as well as the theft of an additional bicycle.

He admitted freely, Harvill said, because he knows that at present he cannot be punished. He was released as usual after questioning—J.A.M. 4

THE VARIOUS FORMS OF SHOCK THERAPY IN MENTAL DISORDERS AND THEIR PRACTICAL IMPORTANCE

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THE main interest in today's psychiatry centers around problems of treatment. This in itself is a fact of far-reaching significance in a field so little therapeutic-minded until a short time ago.

In the beginning the various shock treatments were overestimated by some psychiatrists, belittled by others. Today they are sufficiently recognized to discuss them before a general medical society. Sensational newspaper reports keep the interest of the laity awake. The general practitioner is constantly asked about them, and one cannot overstress the importance of his role in a field where early diagnosis and recommendation of early treatment are decisive. Therefore, we shall try to give here an account of what shock treatments are and how much of them is beyond the stage of research.

It is more than difficult to discuss in a brief paper facts and problems in this field that is so much in a state of flux. The ideas here presented are based on a year's trip through most of the European centers of psychiatric shock therapy, followed by work in shock therapy in New York State. This made it possible to utilize in this paper experiences of various psychiatric schools.

The term "shock treatment" is misleading because it is applied in general medicine to something quite different. It was introduced in psychiatry by Sakel¹ for his insulin treatment by means of which the patient is brought into a hypoglycemic coma. Later on it was likewise used for the different methods to produce epileptiform attacks as a treatment for mental disorders—namely, metrazol treatment and electric shock treatment.

These three methods are the main types of shock therapy nowadays. But it is usually overlooked that they had an important predecessor in Klaesi's² "prolonged sleep" treatment, described in 1922 and still done as a routine treatment, besides the others in the leading institutions in Switzerland. The patient is brought into a continuous sleep for eight to twelve days. It was considered

dangerous as long as somnifen was used, it is now done with a mixture of barbiturates, chloralhydrate, and paraldehyde, induced by enema. Its advantages have mostly been seen in the quieting effect and in bringing the patient into a good psychotherapeutic relation to the doctor. The best results are seen in persons affected with catatonia and in the various stages of the manic-depressive group.

Another forgotten predecessor, already called "shock treatment," is Schuster's³ treatment with anaphylactic shocks (milk injections repeated at ten-day intervals).

A wider application was given to insulin treatment than any other method since 1934. Hypoglycemia had been tried as a symptomatic treatment in morphine addicts and in psychoses. But what Sakel's predecessors avoided and feared, i.e., the production of full coma, became the main point of his technique. It is due to this treatment and to the elaboration of a precise technique that a systematic treatment of schizophrenia was initiated in all psychiatric places in the world. We can state today that whatever way psychiatric therapy may take in the future it was the insulin treatment that made psychiatrists therapeutic-minded. It was shown that physical treatments are helpful in dementia praecox and manic-depressive psychosis and that they are superior in efficiency to psychotherapeutics as far as the major psychoses are concerned.

We cannot give here details about the technique, but I can state from what I have seen in most countries that almost everywhere the original technique is being used, at least in its essential features. Only few authors recommend subcomatous doses and claim results with this so-called ambulatory insulin treatment (Polatin). Treatments should be given five or six days a week and thus for two, three, or more months.

Contraindications are acute forms of tuberculosis, liver and kidney diseases, myocardial damage, and coronary disease.

It is the definite opinion of most workers that it is desirable to bring the patient into as deep a coma as compatible with safety. Many feel that in otherwise hopeless cases it is even worthwhile to take a risk and to leave

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From the Department of Psychiatry of the New York State Psychiatric Institute and Hospital.

the patient in a longer coma. All reports about cases complicated by a protracted coma show clearly that those cases, when they were brought out from their prolonged comatose condition, had an extremely good recovery rate (Binzley, Anderson, *et al*.) A special technic to obtain a prolonged coma at will is given by Kraulis.⁵

As far as complications are concerned, we can say that fatal accidents are rare. In all places with a good technic and a sufficiently numerous and well-trained medical and nursing staff, the death rate is kept below 1 per cent. The most important complication is the above-mentioned "prolonged" coma. When this was first seen, large doses of glucose were given to overcome it, but it is known today that it is not a prolonged hypoglycemic coma but apparently an expression of acute brain cell disease.

A second group of complications are those on the part of the cardiovascular system. They are rare but dangerous. They may occur not only during deep coma but also in the precomatous state. However, the possibility of such events is no good argument against insulin or other shock treatments. It should not be forgotten that in dementia praecox we are dealing with a progressive disease that kills the personality of the patient and, therefore, in many respects, is a more terrible disease than many organic diseases with rapid fatal results.

Epileptic seizures are a frequent occurrence in insulin treatment but are not absolutely to be considered as complications. They may occur during the coma as well as in the precomatous state. A patient of Katzenelbogen⁶ had eleven seizures the same day, the following day she showed a full remission. These and similar experiences led to the idea that epileptic seizures in insulin treatment might be of therapeutic value. Whether the cases with spontaneous convulsions during the hypoglycemic state really have a better recovery rate than others is still being discussed. This opinion, however, and the apparently incorrect idea that epilepsy and schizophrenia do not occur in the same person gave the theoretic basis for the second important group of shock therapy, the so-called convulsive treatments (von Meduna⁷). This group has in common the provocation of epileptic seizures. They are produced either pharmacologically with metrazol and similar drugs that are toxins for the brain cells or with electric stimulation of the brain—the so-called electric shock treatment.

The technic of metrazol treatment will not be discussed in detail, it consists of a quick intravenous injection of 5 cc or more of a 10 per cent solution of metrazol. The fit is preceded by a latent period during which the patient experiences a rather disagreeable sensation of anxiety. The treatment is generally given two or three times a week. A treatment course consists of fifteen or twenty applications, but improvements are usually achieved between the fourth and the eighth treatment. The short duration of this and other convulsive therapies makes it possible that a far greater number of patients can be benefited by convulsive treatment than by hypoglycemic treatment. Insulin and convulsive treatments are often used simultaneously, because in this way the therapeutic effect is considered to be more intense. They can be combined in different ways. Either the course of insulin treatment is interrupted by days on which convulsions are given or the metrazol is given at the beginning or during the insulin coma.

The opinion about metrazol treatment varies greatly in different places. In most European countries it has its place equal to insulin treatment. In England I got the definite impression that it finds a considerably greater application than insulin. Metrazol therapy has found its strongest opponents in New York State. Several health authorities even objected to its being used. It is all the more important that, recently, an objector to the method, Cheney, and his coworkers⁸ reported favorable results and strongly suggested resumption of its use where it had been discontinued.

Some unfavorable statistics about the results not so much brought up the sharp fight against the metrazol method as overvaluation of certain ill-effects.

Of these, one group has to be discussed here—namely, the fractures and dislocations, especially the vertebral fractures. After the method had been used for years, the explanation for frequent, usually slight backache was found in vertebral compression fractures. These x-ray findings were generally confirmed, but it must be stated that they have a limited or no clinical significance at all. Polatin and coworkers,⁹ who gave the first report, warned against exaggerated conclusions. The psychologic factor of the "broken back," however, considerably discredited a method that is of definite help in psychiatric treatment.

Today we have found many ways to pre-

vent these complications almost completely. Fractures of the long bones and dislocations can be avoided by a careful technic. The same holds good for the vertebral fractures, as Cheney's report shows. Chemical means, like curara and erythroidin, are used in order to paralyze the muscles and prevent the strength of their contraction, which is the cause of those fractures. The same, however, can be achieved by good position of the patient. Since these fractures occur in the anterior part of the dorsal vertebrae, we bring the patient into an exaggerated hyperextension of the vertebral column and, thus, are able to avoid fractures without the use of curara, which gives the patient acute discomfort and sometimes makes breathing more difficult.

It could, furthermore, be shown that these radiologic fractures have no clinical importance whatsoever, re-examination of those patients, which has been made two or more years after such fractures, showed that no late effects are produced which eventually may hamper the working capacity of the patient.

Other more serious complications are extremely rare. The greatest disadvantages remain as sensation of fear before, frequent intravenous injections, and a rather unpleasant condition when the injection does not bring about a convulsion.

These disadvantages, in 1937, led Cerletti and Bini¹⁰ to the attempt to produce convulsions by means of electric current. This electric shock treatment, recently introduced in many places in this country, uses the ordinary house current. We send 60 to 120 volts through large electrodes applied to both fronto-temporal regions for the duration of usually not more than $\frac{1}{10}$ second. We know that only a small part of this current, probably less than $\frac{1}{100}$, reaches the brain, and no damage from the current has to be expected. No serious accidents of any kind have been observed in those institutions using this treatment (Kalinowsky and Barrera¹¹).

Electric shock therapy gives two responses that are analogous to the corresponding phenomena in epileptic patients. With subconvulsive doses, we obtain petit mal consisting of unconsciousness, with apnea from 1 to 60 seconds. Increasing the voltage, we obtain typical grand mal convulsions. Either response can be produced at will. In old persons and in those patients where the full strength of a convulsion is undesirable, petit mal can be given, though we could show that

the therapeutic effect is definitely not the same as with grand mal seizures.

Electric shock therapy is given at the same intervals as metrazol. Its great advantages are simplicity, minimal expense, and a complete lack of discomfort on the part of the patient, who has a perfect amnesia for the treatment itself and retrograde amnesia for all the preparations. Therefore, perfect cooperation of the patient is another advantage.

Before I discuss the indications and results of the various treatments, I wish to mention briefly three other methods still in the trial stage. Many investigators believe that the common factor in all the mentioned treatments is depression of brain metabolism. With insulin this is caused by the lack of sugar, with metrazol, by the lack of oxygen. In the so-called nitrogen or "anoxic shock" treatment (Himwich, Alexander, and Lippetz¹²) anoxemia is achieved by administration of nitrogen or other gaseous mixtures, this being done preferably by an experienced anesthetist. Some reports are favorable, but information that I was able to obtain from other places where this method has been tried was not convincing.

Apparently not much applied so far is the "faradic" shock treatment of Berkwitz.¹³ Here, a current, too low to produce even unconsciousness, is supplied. Shortly after this faradization, unconsciousness is obtained by intravenous injection of a barbiturate. It is our impression that eventual results are obtained not by means of electric current but by the following artificially produced sleep.

The most recent method, still in the experimental stage, is the low-temperature treatment as used primarily for cancer, known to the public as "frozen sleep" treatment and going to be published as hypothermia by Talbot and Tillotson.

The crucial point of treatments lies in their results. The answer should be expected from the percentage of recoveries and improvements. But no good comparison is possible because opinions about the frequency of spontaneous remissions in the preshock era vary considerably. Before I mention some of the data available, I want to state that the statistical approach is not the only one. After speaking with psychiatrists of various schools and countries, I found that they all feel that the different shock treatments bring about definite results, which are not overwhelming but represent a distinct progress. Insulin, as well as the two convulsive treatments, was recommended originally for de-

mentia praecox. Later on, it was found by American authors that the convulsive therapies have their main indication in the manic-depressive group and in involutional psychoses where the most spectacular results are obtained. Everyone who has seen depressive patients mute, stuporous, and tube-fed for years, who after three or four convulsive treatments recover completely, will no more belittle the importance of these treatments. In this group, amazing recoveries are achieved in the majority of all treated cases.

Results in schizophrenia are less striking, but they occur in a number sufficient to satisfy everybody who is seriously working in shock therapy.

As to statistics, we find big differences. The percentage of improvements is higher in European statistics. But when we consider the ratio between treatment remissions and spontaneous remissions, we come to the strange result that the New York State statistics by Ross and Malzberg¹⁴ for schizophrenia are more favorable. They find nearly three times as many recoveries in insulin-treated as in nontreated patients, whereas the largest Swiss and German statistics only come to a ratio of less than 2:1 between treated and untreated cases. In the group of much improved cases this difference is still greater.

The explanation is that in American statistics the figures for recovery without treatment are extremely low (3.5 per cent). Reports utilizing figures from various European countries come to 20 per cent spontaneous remissions. This considerable difference is sometimes explained by supposing that the diagnosis "schizophrenia" is made more frequently in Europe than in the United States. Psychiatrists who have worked on both continents cannot accept this explanation. Since statistics are generally based upon cases paroled or discharged from the hospital, it is more likely that a difference in parole policy is the explanation. Apparently, a parole decision is less easily made in this country.

A fact of greatest importance resulting from all statistics is that persons with schizophrenia with short duration of disease have a better outcome than long-standing cases. In cases of less than six months' duration, between 55 and 80 per cent remissions are reported after insulin therapy by reliable workers. Cases of between six and twelve months' duration showed about 25 per cent less remissions. The rate of full remissions decreases constantly with the longer duration of the disease. Furthermore, relapses are

rarer in patients treated during the first year of the disease and become more frequent the later patients are subjected to treatment. This fact has to be stressed again and again because it shows the great danger of reluctance on the part of the practitioner and of many psychiatrists in referring patients for treatment. It is a mistake made in many places to let valuable time slip by hoping that spontaneous recovery might still occur.

Statistics of metrazol treatment in schizophrenia are still more contradictory than with insulin. Ross and Malzberg's report shows even fewer recoveries than in untreated schizophrenia. Most of the other statistics, including Cheney's last report, are far more favorable, and many statistics go up to such figures as seen in insulin treatment. In electric shock treatment the time of observation is still too short, but our own experience in two parallel series, one treated at the New York State Psychiatric Institute and the other at Pilgrim State Hospital, compares favorably with experiences with other methods.

It would be of great help if we knew more about the treatment prognosis. Prognostic aids are given by transient improvement after intravenous injection of sodium amytal (Harris, Horwitz, and Milch¹⁵), certain Rorschach findings (Piotrowski¹⁶), and other psychologic performance tests. But more important for the choice of patients and prediction of the therapeutic outcome are clinical experiences. We have mentioned the importance of the duration of the disease. Other favorable factors are conservation of a certain affective responsiveness and, in older cases, a history of previous remissions which makes even old cases worthwhile for treatment. An unfavorable factor is seen in the admixture of psychoneurotic symptoms. This latter point is in accordance with my own experience—that cases of pure psychoneuroses get the least benefit from all kinds of shock treatments.

The various groups or types of schizophrenia are believed to react differently to treatment. It is said that acute paranoid types and agitated catatonic types react better to insulin, stuporous catatonic types and hebephrenic types react more to convulsive therapy. Opinions in this respect vary widely. Apparently the treatment prognosis goes parallel to the prognosis for spontaneous remissions in the various types.

In affective disorders pure convulsive treatment has become more and more the method of choice. Bennet¹⁷ in this country was

the first to draw attention to the excellent response of depressions of the manic-depressive group, as well as of involutional cases, to metrazol treatment. Figures of 80 per cent and more were given. Cheney's recent metrazol report comes to similar results. Our own electric shock experience gives the same favorable picture for depressives as well as for manics.¹⁸

The practical value of the various forms of shock treatment cannot be doubted. What is the best possible way to utilize the new methods? It has to be admitted that we have no idea how these treatments act and that "we treat an unknown disease by unknown means" (Frostig). These methods break up a psychosis, and rapport with the world is re-established. We do not know how this occurs, but we see empirically that we obtain results. The only practical conclusion, therefore, can be that we have to treat our patients with one or another of these methods. A certain reluctance is felt in many places—a fact that one gathers not from literature but from personal contact with people. Disappointments give no right to give up. The most consistent argument one hears is the occurrence of relapses, if this were an argument against treatment, no cancer therapy would exist. Our chances are certainly better than in cancer, because relapsed psychotic patients offer a good prognosis on retreatment. We should not forget that every day outside a mental institution is a gain of life for the individual and his family and a financial gain for the community.

Treatment of large groups of patients will increase our experiences. At this time and for several years to come it will be a moot question to ask whether insulin or metrazol or electric shock is the best treatment. The best results will be achieved by a combination of the different methods in different ways. The various methods are not meant to compete but to complete each other.

This leads to the suggestion that special treatment units should be developed in all state hospitals as it was recently done in this state at Pilgrim State Hospital. In these treatment units, all methods should be used, combining them in a purely empirical way. Relatively large numbers of patients can be treated today, thanks to the convulsive therapies, which are simple and act quickly if they act at all. Thus, the more intense insulin treatment can be reserved for selected cases, perhaps after an attempt with the other methods. Insulin and the convulsive methods

are beyond the experimental stage, and further progress in therapeutic knowledge should come from studies on large groups of patients in state hospitals.

We should be able to treat all new patients who come to a mental hospital before they become chronic and institutionalized. It is another weak argument against shock therapy that it is not effective in old standing cases. All cases have at one time been recent. The population of state hospitals will decrease considerably when all new admissions can get the chance of some sort of shock therapy. I have tried to deal with all the various shock treatments in this short paper because in my opinion only common consideration of all the methods can bring us forward. These new treatments give the patient a chance to recover, they give the community the possibility of decreasing the number of inmates, to clinical research they show new possibilities for psychiatric understanding, and to the individual psychiatrist they give a satisfaction that he has missed so long—to become an active therapist in, so far, untreatable diseases and, thus, to be a physician in the sense of the word.

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Discussion

Dr Ralph W Bohn, *Helmuth, New York*—It is a pleasure and an honor to discuss so able an exposition of the various types of shock therapy. Dr Kalinowsky's paper is concise but inclusive.

There was only one point to which I take exception and that is the last sentence. As a psychiatrist I have felt just as competent a physician as those who deal exclusively in drugs or surgery. I believe that our therapeutic results in recent years more than justify such an attitude.

The introduction of the shock therapies is just another addition to our steadily increasing armamentarium. Dr. Kalnowsky has not exaggerated its importance.

In our enthusiasm for a method that is giving such startling results I feel that we must be careful not to stress the pharmacologic side to the exclusion of the psychic. It is still my studied belief that the shock therapies operate as a threat to the existence of the individual which cannot be ignored and thus force contact with reality. Those cases in which psychotherapy is ignored or neglected are apt to relapse quickly.

At the Gowanda State Homeopathic Hospital we have had continuous experience with Sakel's hypoglycemic shock since he introduced it to the New York State hospitals through arrangements made by our former commissioner, Dr.

Parsons. It was finally necessary to relinquish it reluctantly because of the excessive personnel necessary for safe administration. We have substituted the so-called ambulatory type of insulin therapy with rather encouraging results.

We were among the first to use metrazol and continue to at the present time. Our experiences here coincide closely with those cited by Dr. Kalnowsky. I have been particularly impressed with results in the agitated depressions and the involution melancholias. At the present time I am engaged in accumulating statistics on these two types of cases admitted to our hospital over a period of more than three years. Contrasting the metrazol treated cases with the "untreated," I find that the period of hospitalization has been neatly halved in the former, and the recoveries bid fair to rise appreciably. I hope to be able to make a formal report reasonably soon.

Last, but by no means least, it would seem that sufficient evidence has accumulated to recognize the shock therapies as "accepted treatment."

EXAMINATIONS—AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The written examination and review of case histories (Part I) for Group B candidates will be held in the various cities of the United States and Canada, on Saturday, January 3, 1942, at 2:00 P.M. Formal notice of the place of examination will be sent each candidate several weeks in advance of the examination date. No candidate will be admitted to the examination whose examination fee has not been paid at the Secretary's Office. Candidates who successfully complete the Part I examination will proceed automatically to the Part II examination held in June, 1942.

Candidates for re-examination in Part I (written paper and submission of case histories) must request such re-examination by writing the Secretary's Office not later than November 15, 1941. Candidates who are required to take re-examinations must do so before the expiration of three years from the date of their original examination.

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board, meeting at Atlantic City, New Jersey, in June, 1942, immediately prior to the annual meeting of the American Medical Association, to be held in the same city.

Application for admission to Group A, Part II, examinations must be on file in the Secretary's Office not later than March 1, 1942.

As previously announced in the Board booklet, this fiscal year (1941-1942) of the Board marks the close of the two groups of classification of applicants for examination. Thereafter, the Board will have only one classification of candidates, and all will be required to take the Part I examinations.

For further information and application blanks, address Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

ODE TO AN ULCER

Sent by A. W. H., Calif., who says it was written by a patient who had one

O duodenum miserable
Why is it when I eat considerable
A sense of comfort permeates
My being and full peace creates
But in mid-morn when belly's flat
There comes the weakness of a cat
Must I rush forth to milk a cow
To stem the pangs and stop the row

That started when the hydrochloric
Got frisky with my damned pyloric
Must I forever decorate
My innards at ten, four, and eight
With powders made of God knows what
Is that my fate, is that my lot?

BURNS? (sometimes)
—J. A. M. A.

THE GENERAL PRACTITIONER'S PART IN THE CAMPAIGN FOR THE PREVENTION OF BLINDNESS FROM GLAUCOMA

MARK J. SCHOENBERG, M D, New York City

THE decision as to whether in the future we shall have a small or large number of persons blind from glaucoma rests largely upon the general practitioner

Surveying the facts, we find

1 Out of hundreds of thousands of ambulatory patients daily consulting medical practitioners throughout this land, at least 30 per cent are 40 years of age or more

2 It is within this age group of patients, which constitutes a large part of the clientele of general practitioners and clinics, that one has to look for the present and future glaucoma victims

3 Patients afflicted with glaucoma are potentially—nay, frequently—victims of partial or total loss of sight

4 It is estimated that there are approximately 200,000 blind persons in this country, of whom over 20,000 are blind from glaucoma. In a paper recently published, Pfeiffer and Booth¹ report that of 2,685 cases of blindness 12 per cent were thus affected by glaucoma. In addition, there may be five to ten times as many one-eyed blind and two-eyed partially blind people—altogether 100,000 to 200,000 victims of glaucoma *

5 Blindness from glaucoma is preventable in a large percentage of cases

6 *The general practitioner is one of the first to have an opportunity of detecting or at least suspecting the presence of glaucoma at an early stage* By including a few more items in his list of diagnostic procedures and by asking a few relevant questions he would be able to survey the condition of the visual organs of his patients and discover, or *at least suspect*, the disease responsible for so much blindness

Recently, the National Society for the Prevention of Blindness initiated a campaign to reduce the percentage of blindness due to glaucoma. This organization, in agreement with the ophthalmologic profession, reasons as follows

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 30, 1941

Chairman, Committee on Glaucoma, National Society for the Prevention of Blindness, 1790 Broadway, New York City

* The probable loss of income due to unemployment caused by blindness from glaucoma would amount approximately to \$10,000,000 per year for 20,000 persons blind from this cause. These figures do not cover the financial loss due to partial disability, etc.

A Early treatment of glaucoma gives good results and saves sight in a large percentage of cases, late treatment does not

B Early treatment cannot be administered without an early diagnosis.

C The medical practitioner's cooperation is essential to discover the early cases or at least many of those still in a stage in which treatment may save a great deal of sight

D Having established or at least suspected the diagnosis of glaucoma, medical practitioners are in a position to direct their patients as soon as possible to ophthalmologists or eye clinics for checkups and to cooperate in the treatment by furnishing the necessary information concerning their patients' general health

The result of such an effort would increase appreciably the number of glaucoma patients taking treatment and would lead to a proportionate decrease of blindness

Glaucoma—a Blinding Disease

There is a type of glaucoma—*acute glaucoma*—which has a stormy beginning and runs a stormier and exciting course. It is characterized by excruciating pain in and around the eye, almost complete loss of vision, one-sided headache, nausea, vomiting, dilation of the pupil, and cloudy cornea. Occasionally, the inexperienced physician may think he is dealing with a gastric upset or iritis. Valuable time is lost. And yet the diagnosis is simple, loss of vision, hardening of the eyeball, congestion, and cloudy cornea are pathognomonic of acute glaucoma. Immediate action can save the eye from blindness. There is nothing insidious about this type of glaucoma.

But for every case of acute glaucoma there are about 10 cases of a different type—*simple glaucoma*. This kind of illness sneaks into a patient's eye almost without his knowledge, gradually and almost painlessly robbing him of his sight. This is the type that if not discovered and treated in time causes blindness. It is for the early discovery of this type of glaucoma that the medical practitioner's help is needed. The impairment of vision usually begins in one eye at first. It usually appears around the age of presbyopia or menopause, somewhere between 40 and 50 (at times later), with an occasional blur in front of one or both

eyes and a slight, one-sided headache. The patient experiences some difficulty in reading, sometimes he complains of tearing and at other times of excitement and worry, a few hours spent playing cards or at the movies leave him with an uncomfortable feeling in his eye and blurred vision, or he may see rainbow-colored halos around the lights. This dangerously mild course may last a long time (months or even years) before the patient becomes aware of a considerable loss of central vision and of a defect in the peripheral field of vision. Most of the time the loss is not recoverable and, then, the problem is how to arrest further loss of vision.

And now arises the question whether the rank and file of medical practitioners, some of whom have excluded for a long time a routine eye examination from their daily practice, can still master or acquire the essential points that make up the armamentarium for recognizing or suspecting glaucoma.

The answer is definitely "Yes!" It is relatively easy to make a diagnosis of glaucoma in the advanced stage and often not really impossible in the less advanced stage. In both cases such a diagnosis is of considerable value, especially since one eye may be much less affected and may be "caught" at its initial stage when treatment is usually most effective.

Six Points of a Diagnostic Armamentarium for the Medical Practitioner

The proper technic could be acquired in a few hours by attending lectures and demonstrations organized by ophthalmologists of your locality.

1. Measure the acuity of vision. The cause of subnormal vision of one or both eyes must always be investigated.

2. Examine the size of the pupils and their reaction to light. Inequality of pupils or poor reaction to light is not to be ignored.

3. Feel with the fingers whether the eyes are normally soft or hard. One can acquire this "feel" by instruction and practice.

4. Examine each eye with the ophthalmoscope and find out whether the optic disks are pale and excavated.

5. Ask the patient about the occurrence of occasional blurring or clouding of vision, seeing rainbow rings around a distant light, one-sided headaches, discomfort in or around the eyes after movies, excitement, and worry. Inquire whether the patient experiences difficulty in reading in spite of recently prescribed glasses.

6. Ask whether there is a case of glaucoma in the family.

Above all, exercise tact so as not to alarm the patient unduly.

The presence of any one of these points is not sufficient to make a diagnosis of glaucoma, but investigation of all the points will frequently suffice to obtain enough evidence to detect or suspect the existence of glaucoma. Of these points, the technic of ophthalmoscopy is the most difficult part, but even this can be acquired within a few hours' time to a sufficient degree to enable one to see the optic disks in a majority of patients. All one needs is a willing instructor and an electric ophthalmoscope. With a pair of healthy eyes, patience, and ten carefree hours at his disposal, any medical practitioner may acquire the necessary knowledge and skill.

Now that a campaign for early diagnosis of glaucoma is about to be started, ophthalmologists have a splendid opportunity to popularize among medical practitioners the use of the ophthalmoscope, one of the most important discoveries in the field of medicine. Medical practitioners, being always ready to appropriate procedures that improve their diagnostic acumen, will surely not be indifferent to an offer from ophthalmologists enabling them to enrich their knowledge. This being so, the following question arises: Assuming that the problem of prevention of blindness from glaucoma is a serious one and that the medical practitioner agrees that he can play an important role in the present campaign of prevention of blindness from glaucoma, what plan could be suggested to familiarize the rank and file of the medical profession with the "six diagnostic points" enumerated above and their application in daily practice?

Outline for Organizing a Glaucoma Campaign Among Medical Practitioners

1. Form a committee of one ophthalmologist and one prominent medical practitioner (preferably an influential officer of the county medical society) residing in each principal town or district to conduct the local campaign. The aid and sponsorship of the county medical society should also be enrolled whenever possible.

2. The campaign committee should call a meeting of the rank and file of all local ophthalmologists, explain the object of the campaign, and ask their cooperation in presenting to general practitioners a series of lectures and demonstrations on diagnosis of glaucoma.

3. As soon as this is organized, letters and circulars should be sent to all medical practitioners inviting them to enroll for the course.

Groups of five or six men could easily get the necessary individual instruction, if necessary, two or more groups could be taught at the same time in separate lecture rooms

4 Whenever possible the course of instruction should be centered in clinics or hospitals

5 No discrimination should be made against ophthalmologists who are not connected with hospitals or clinics. All ophthalmologists should participate in the campaign of instruction and demonstration. Allow the practitioners to take the course several times if they so desire

The National Society for the Prevention of Blindness, its Committee on Glaucoma, and the New York State Bureau of Services for the Blind, through its prevention of blindness service, are eager to cooperate in every possible way to promote this important phase of the campaign

Summary

1 Every glaucoma patient is a candidate for partial or total loss of sight

2 Blindness from glaucoma is frequently preventable

3 Prevention of blindness is often attainable by (a) an early diagnosis, (b) early treatment, and (c) constant watchfulness

4 Late diagnosis and treatment mean failure in the majority of cases

5 It is better and more economical to prevent blindness than to subsidize the blind

6 *The role of the medical practitioner in this campaign is* (a) to *discover or suspect* the presence of glaucoma among his patients, (b) to refer them to eye clinics or ophthalmologists, and (c) to cooperate with the latter by furnishing all the data concerning the general health of the patients

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Discussion

Dr William A. Groat, *Syracuse, New York*—The outline that Dr Schoenberg has presented which details the general practitioner's part in the prevention of blindness from glaucoma impresses an internist as sound medical practice. I am not one of those who believes that a general practitioner or an internist should feel himself qualified to make the finer differentiations in the special examination of the eye, but I certainly do feel that every internist, practitioner, or student who has been properly taught physical diagnosis should be, and in the main is, qualified

to make as a routine the basic examinations that Dr Schoenberg considers necessary

It might be well to point out that reciprocally the ophthalmologist should be careful not to disparage or discredit these simple routines, carried out with minimum equipment, so useful as a part of a cooperative plan to pick up deviations from the normal as early as possible

The part of a general examiner should be to know the danger signs and to be able to satisfy himself as to the absence of these danger signs in the particular patient. The part of the ophthalmologist is to carry on from there. The ultimate treatment should be a cooperation enterprise

It was a little bit of a shock to me to hear it said that there is so much blindness due to untreated glaucoma or that glaucoma is such an important item in the prevention of blindness. I, therefore, took occasion to inform myself a little bit, and I find that so far as the literature is concerned the general opinion seems to be that it is a matter of 2 to 5 per cent. There is some discrepancy perhaps because of differences of opinion as to just what blindness is and whether it is absolute, economic, vocational, or educational impairment in some degree as classified by the Division for the Blind in the State Department of Social Welfare. However, there need be no serious quibble about this. Slight or partial impairment of vision is a definite handicap to a person who does anything at all. It limits his activities and his pleasures somewhat no matter what his status may be. So far as glaucoma is concerned, acute or chronic, 2 or 3 per cent of blindness is not much as a percentage, but it is altogether too much and causes too much economic loss and suffering in the aggregate not to be an important topic for consideration by the internist, as well as the ophthalmologist

The thing to be worked for is a solution of just what glaucoma is. It seems now to be just a symptom of something deeper and unknown. It is as much the duty of the internist as it is for the ophthalmologist to discover it, and investigation research should point that way. It is nowhere near as valuable to be able to discover glaucoma early as it is to, as an Irishman might say, discover it before it happens. In other words, the true objective is to know how to prevent glaucoma rather than how to treat it. To do this the internist needs to know what glaucoma really is

Dr Harold H. Joy, *Syracuse, New York*—The National Society for the Prevention of Blindness is to be commended on its appointment of Dr Schoenberg as chairman of its glaucoma committee. Dr Schoenberg has been intensely interested in glaucoma for many years, and no one in American ophthalmology is better qualified to carry on this work

The glaucoma problem is one of intensifying importance, for it is probable that its incidence is rapidly increasing. In great part this is due to

the rise in the population age group of those over 40 and to the strain and worry to which a large part of the adult population has been subjected in recent years

I think we all agree that it is of the utmost importance to make a concerted move to attack this problem. To do this it is essential to arouse the interest and get the cooperation of all physicians practicing medicine in adults. It is not a question of converting them into ophthalmologists but of making them glaucoma-conscious.

This need is exemplified in its crudest form by the many instances of improperly diagnosed acute glaucoma. It not only is confused with iritis and even conjunctivitis but with gastrointestinal upsets and other general conditions. In the majority of cases even a cursory examination of the eye would reveal the true condition. If the physician were thinking in terms of glaucoma, such tragic mistakes would seldom occur.

The diagnosis of chronic glaucoma, particularly the noncongestive type, offers many difficulties to the general practitioner. It is probable that relatively few cases can be uncovered by him in the earlier stages in spite of any instruction ophthalmologists may give. However, if he

becomes conscious of the frequency of glaucoma and knows its symptoms, great progress can be made in diagnosing many cases before too much irreparable damage has been done. The six points which Dr. Schoenberg has brought out should, on the whole, be rather easily mastered. This is particularly true of the history, the visual acuity, and the examination of the anterior segment of the eye. I believe that less reliance can be placed on his ability to test the intraocular tension by palpation and that the interpretation of the ophthalmoscopic picture may be confusing to many.

While Dr. Schoenberg is attacking the problem in the right manner in attempting to secure the interest and cooperation of the general practitioner, the role of the medical student, intern, and nurse should not be neglected. In our teaching we should constantly impress upon them the signs and symptoms of glaucoma, its frequency, and the horrible results of mistaken diagnosis.

Whatever effort we as ophthalmologists put into this campaign will be richly rewarded in saving the vision of many who might otherwise end their days in twilight or darkness.

WE MUST LOOK BEYOND TOMORROW

Through our Selective Service Act, we are removing our future husbands and fathers from their sweethearts and wives, we break the ties which form the foundations of the family. The very thought of draft prevents many couples, who want children, from having them. No responsible man wants to turn to soldiering leaving behind a frightened wife expecting a baby. The prospects of life for her and her baby on a soldier's meager pay are terrifying.

Students of our country have been greatly concerned with the possibilities of a declining population in peacetime conditions. The threat of war and possible draft may accelerate this trend, especially among those who are imaginative, sensitive, far-sighted—who under happier conditions would be the first to have families. It is the final indictment of war that both its direct and indirect casualties fall most heavily on "the best people."

It is an established medical fact that the best ages for having children are between twenty-one and twenty-six. After that time, the risks for mother and baby rise rapidly. These young married people, therefore, for their own sakes, for their children's sakes, for the future of this land, must have in these insecure times as much security as is possible to provide. Hesitant husbands and wives should be encouraged to go ahead with their families by assurance from the community that if conception is necessary, mother and baby will receive good medical, hospital, and nursing care before, during, and after delivery.

But more is needed than just care of mother and baby during childbirth. If families must be

broken up because the husband is drafted, because he must seek work in a distant defense project, or because children must be evacuated from some areas—it should be a cardinal rule of social policy that the mother should always remain with her family. She may be both mother and father to her children. She will, doubtless, be able to keep the rudiments of family life strong, to instill courage, to build character and regard for the other fellow, to keep a unity in family living which is so necessary to the future of children and the strength of the United States in the next generation. There are many possible means of keeping a mother with her family. Some have suggested government subsidies to those families who are called upon to pay the cost of crisis in self-denial and sacrifice. The method does not matter nearly so much as the end result—that of keeping families together. We must not repeat the injustices and sufferings which befell families in the last war in this country and which are even now falling upon families in other lands.

We must look beyond tomorrow and the day after tomorrow and the day after that. We must endeavor to bring as much good out of this period of flux as is possible to achieve—better children with better health, better education, better equipment for life. We need more than National Defense, we need a national offensive program to make family living—the very root of national living—stronger, richer, and more enduring. That offensive can begin in keeping the rudiments of family living strong in this crisis. That should be one of our own peacetime aims.

—Maternity Center Briefs

RECENT ADVANCES IN GYNECOLOGIC HORMONE THERAPY*

SAMUEL H. GEIST, M.D., and UDALL J. SALMON, M.D., New York City

IN RECENT years the chemists have made amazingly rapid progress in isolating and synthesizing a whole series of hormones. A number of these compounds have been employed successfully in the treatment of a variety of endocrine disorders. Others seem to be chiefly of academic interest, appearing, at present, to have little therapeutic value. Unfortunately, clinical endocrine research has not been able to keep up with the hormone chemists, so that, at present, clinicians are in the anomalous position of having available a number of pure hormone products of high potency without knowing how to apply them clinically. Moreover, the nature of the basic endocrine disturbances underlying many functional gynecologic conditions is still but imperfectly understood, and for this reason much of hormone therapy is still more or less empiric or based upon theoretic concepts. To the clinician who has to cope daily with the practical problems of correcting disorders and relieving symptoms, the academic discussions of rationale are only of secondary importance. His chief interest is in therapeutic efficacy. We shall, therefore, confine our presentation to the recent advances in gynecologic endocrine therapy that have proved effective and, in addition, present to you briefly some phases of hormone therapy that are still in an experimental stage but that are potentially of practical value.

Recent Advances in Estrogen Therapy

Clinical Considerations—Estrogens are now universally accepted for the treatment of the

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 29, 1941.

From the gynecological service of Dr. S. H. Geist, Mount Sinai Hospital, New York.

* *Acknowledgments*—We are indebted to the Schering Corporation for estradiol and estradiol benzoate crystals and pellets, ethinyl estradiol, pregnenolone (Pranone), estradiol in propylene glycol, methyl testosterone (Oretone-M), testosterone propionate (Oretone), Anteron, Pranturon, and Follicle-Stimulating Hormone.

Ciba Pharmaceutical Products for estradiol and estradiol dipropionate crystals and pellets, estradiol dipropionate (Di-Ovoeylin), pregnenolone (Lutoeylin), testosterone propionate (Perandren), and methyl testosterone (Metandren).

Ayerst, McKenna and Harrison, for Stilbestrol, chorionic gonadotropin (A.P.L.), and pituitary gonadotropin (Gonadotropic Factor).

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menopause syndrome, whether natural, surgical, or induced by x-ray. No other phase of endocrine therapy has a more logical rationale. It is common knowledge that in this syndrome the basic hormone disturbance consists of an estrogen deficiency. This leads to a variety of symptoms that manifest themselves with varying intensity and emphasis on various systems in different individuals. Although, in the majority, vasomotor symptoms usually are predominant, in many instances other systems bear the brunt of the disorder. Thus, gastrointestinal, urinary, cardiovascular, neurologic, or psychiatric symptoms may dominate the clinical picture, either singly or in various combinations. Many of the functional disorders that were traditionally classified as "neurasthenia" and, currently, as "psychosomatic" are attributable to an estrogen deficiency. More and more evidence is accumulating which indicates that the estrogens have a much more fundamental role to play in the economy of the body as a whole than has hitherto been appreciated. There is both clinical and experimental evidence that suggests that disturbances of liver function and gastrointestinal disorders, as well as functional cardiovascular disturbances, may be related to derangements of sterol hormone metabolism.

Although recent endocrinologic studies have demonstrated the somatic basis for the menopause symptomatology, one should not lose sight of the fact that parallel with the endocrine imbalance many of these patients have emotional disturbances that may intensify or prolong the somatogenic symptoms. This is particularly important when one attempts to evaluate the efficacy of a therapeutic measure in these cases. The therapeutic end point varies in different patients, as well as in the same patient, at different times, depending upon their emotional status. A proper evaluation, therefore, of the effectiveness of a therapeutic agent should consist of a composite appraisal of the objective evidence of efficacy (e.g., hormonologic and morphologic data), as well as of the patient's emotional makeup.

With regard to objective diagnostic methods, it is worth remembering that the studies of Papanicolaou and Shorr^{1,2} have

made available for us, in the vaginal smear, a method to determine whether an estrogen deficiency is present. The finding of definite evidence of the deficiency in a patient enables one to interpret these symptoms more accurately, supplies one with a basis for rational therapy, and leads to a more comprehensive appraisal of the total personality of the patient and, therefore, to a more accurate prognosis. We have simplified the above-mentioned method for determining estrogen deficiency so that this extremely valuable diagnostic procedure can be performed in the office or clinic in a few minutes.^{2,3}

Estrogenic Compounds—It has been established that α -estradiol is the physiologic estrogen normally produced by the ovary. And for clinical purposes this compound and/or its esters, at present, appear to give the most satisfactory results. It has only one disadvantage and that is its costliness.

Numerous studies, both in animals and humans, have demonstrated that the benzoate acid ester of estradiol is absorbed and utilized more slowly than estradiol and, by virtue of this property, is therapeutically more efficient. Recently, another ester of estradiol was prepared—namely, estradiol dipropionate.

Experimental studies in animals have shown that the dipropionate ester of estradiol has a more prolonged estrogenic effect than any of the other estrogenic compounds.⁷ Two years ago before this Society we presented a preliminary report on the use of this compound. Since then, we have used it in a series of over 100 patients in varying doses. We have obtained satisfactory therapeutic results with this compound. Morphologic and hormonologic studies performed in these patients have demonstrated that estradiol dipropionate is an estrogen of high potency. It is available in concentrations of 5 mg per cubic centimeter making it possible to administer large doses of estrogens in concentrated form.

Stilbestrol This synthetic compound has, in the past two years, attracted a great deal of attention. Aside from the academic interest in the fact that it is a synthetic compound not related chemically to the natural estrogens, it has enlisted the interest of clinicians because of its high potency when administered by mouth. Another factor that is of great importance is its low cost. It has one disadvantage and that is that it induces unpleasant reactions in some patients. These include nausea, vomiting, epigastric pain,

and dizziness.^{4,5} The incidence of these reactions, according to reports of different observers, varies, ranging as high as 60 per cent.^{5,7} Studies of liver function and of the blood chemistry to date have not revealed the cause of these symptoms.^{6,7,8} Pregnant women appear to be able to tolerate large doses without ill effect.^{3,6} A lively controversy is going on at present as to the advisability of using stilbestrol clinically.

The first report on stilbestrol in America was made before this Society in 1939.⁴ We felt then that since the administration of estrogens constitutes, in the majority of instances, substitution therapy, necessitating treatment for many months and possibly years, the ideal substance for this purpose would be one that most closely approaches the endogenous physiologic hormone. Although we have amplified our studies with stilbestrol, to date we have not found any reason to change our views on the subject. Without losing sight of the importance of making available a therapeutic estrogen of low cost to those of limited means, it seems to us that the primary considerations in the appraisal of a therapeutic agent are its efficiency and lack of deleterious action. Judged by these criteria, stilbestrol is distinctly inferior to the physiologic estrogens. It is to be hoped that further research will result in the elimination of the unpleasant reactions induced by stilbestrol and that the price of the physiologic estrogens will be reduced so that their therapeutic properties will be made available to all in need of estrogen therapy.

Ethinyl Estradiol In our search for an orally effective and inexpensive estrogen during the past year, we have treated a series of 55 cases with ethinyl estradiol.⁹ This compound was prepared by Inhoffen and Hohlweg¹⁰ by the replacement of the seventeenth carbon atom in estradiol by an ethinyl group. The authors report that when given subcutaneously in oil, ethinyl estradiol and estradiol are equal in potency but, when given orally, ethinyl estradiol is fifteen to twenty times as active as estradiol. The use of ethinyl estradiol has been reported in secondary amenorrhea and oligomenorrhea, and proliferative changes have been demonstrated in the uterine mucosa following doses of 56 mg of ethinyl estradiol over a period of twenty days.

Our studies have revealed that this compound is an estrogen of extremely high potency as demonstrated by its estrogenic ef-

RECENT ADVANCES IN GYNECOLOGIC HORMONE THERAPY*

SAMUEL H. GEIST, M.D., and UDALL J. SALMON, M.D., New York City

IN RECENT years the chemists have made an amazingly rapid progress in isolating and synthesizing a whole series of hormones. A number of these compounds have been employed successfully in the treatment of a variety of endocrine disorders. Others seem to be chiefly of academic interest, appearing, at present, to have little therapeutic value. Unfortunately, clinical endocrine research has not been able to keep up with the hormone chemists, so that, at present, clinicians are in the anomalous position of having available a number of pure hormone products of high potency without knowing how to apply them clinically. Moreover, the nature of the basic endocrine disturbances underlying many functional gynecologic conditions is still but imperfectly understood, and for this reason much of hormone therapy is still more or less empiric or based upon theoretic concepts. To the clinician who has to cope daily with the practical problems of correcting disorders and relieving symptoms, the academic discussions of rationale are only of secondary importance. His chief interest is in therapeutic efficacy. We shall, therefore, confine our presentation to the recent advances in gynecologic endocrine therapy that have proved effective and, in addition, present to you briefly some phases of hormone therapy that are still in an experimental stage but that are potentially of practical value.

Recent Advances in Estrogen Therapy

Clinical Considerations—Estrogens are now universally accepted for the treatment of the

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days, (b) that estrogenic effects on the vaginal mucosa may persist for periods varying from four to fourteen months, and (c) that symptoms may be relieved for periods varying from three to upwards of twenty-two months.

Comparison of Therapeutic Effectiveness of Pellets and Crystals—In the series of cases implanted with pellets of comparable weight and chemical constitution, the physiologic and therapeutic effects were of much shorter duration. In a number of cases in which the pellets were excised, it was found that a fibrous capsule had formed about the pellets and apparently prevented further absorption of the hormone, so that the majority of these patients, several months after implantation, manifested morphologic evidence of estrogen deficiency even though they retained pellets within their tissues weighing as much as 40 mg.

On the basis of these observations we have come to the conclusion that the implantation of loose crystals is far superior to pellets for therapeutic purposes.

Prophylactic Implantation of Estrogens—A series of patients requiring hysterectomy and bilateral ovariectomy was implanted with estrogen crystals at the time of operation, or shortly thereafter, in an attempt to prevent the castration syndrome. The details of this study have been reported elsewhere.⁴¹ The results to date have been encouraging. Many patients have remained symptom-free for periods of over one year. It is obviously difficult to determine accurately the value of this prophylactic therapy, since the incidence of symptoms after surgical castration is variable. Final evaluation will have to be deferred until a much larger series of cases has been studied.

Implantation of crystals of estrogens is undoubtedly the most efficient and economical method of estrogen administration. This form of therapy should be reserved for patients with severe symptoms and with morphologic evidence of estrogen deficiency.

Recent Advances in Androgen Therapy

In the past three years, synthetic male hormone has been used with increasing frequency in the treatment of a variety of functional gynecologic disorders.⁴²⁻⁴⁴ In order to understand the therapeutic *modus operandi* of androgens, it is necessary to know the biologic effects of androgens when administered to women.

Biologic Effects of Androgen Administration in Cyclical Women—The most potent androgen available is testosterone propionate.⁴⁵

If 500 mg or more of testosterone propionate is administered to a woman with a regular menstrual cycle, the following occur: (1) gonadotropic activity of the hypophysis is inhibited, (2) follicle growth and ovulation are suppressed, with consequent failure of estrogen and progesterone production, (3) no pregnandiol is excreted in the urine, (4) the next menstrual period is suppressed for four to six weeks, (5) the secretory pattern in the endometrium does not develop, normal proliferation is inhibited, and the endometrium is reduced to a state of hypoplasia or atrophy and (6) the vaginal mucosa undergoes regression and the vaginal smears and biopsies reveal changes indicative of estrogen deficiency.^{45, 46}

In addition to the above, in some patients this dose will induce acne and arrhenomimetic^{47, 48} (masculinizing) symptoms—viz, hypertrichiasis, deepening of the voice, and enlargement of the clitoris. Within a few weeks after discontinuation of therapy, there is a gradual regeneration of the vaginal and uterine mucosa, a restoration of the normal ovulatory pattern, followed by menstruation. The acne disappears within two or three weeks and the arrhenomimetic effects, within several months. In order to induce the aforementioned biologic and arrhenomimetic effects, a minimum of 500 mg of testosterone propionate in one cycle is usually required.

Rationale for Androgen Therapy—It is obvious from the above that androgens counteract or negate the biologic effects of the female sex hormones, and the therapeutic use of androgens in gynecology is based upon this antigynecogenic property.⁴⁹

Clinical Indications and Dosage—*Functional Menorrhagia* Twenty-five milligrams of testosterone propionate, given two or three times weekly, have been found to be effective in the majority of cases of functional uterine bleeding.^{48, 50}

Menometrorrhagia Associated with Fibroids Abnormal bleeding associated with small myomas responds to treatment with testosterone propionate. It has been found, however, that if the menometrorrhagia is caused by a submucous fibroid the therapeutic result is only temporary and, in the majority of cases, excessive bleeding recurs shortly after cessation of therapy.⁵¹

Metrorrhagia Associated with Endometriosis The abnormal bleeding responds to androgen administration but is likely to recur shortly after discontinuation of therapy.⁴²

Dysmenorrhea The dosage is essentially

fect on the vaginal mucosa and endometrium and by the relief of estrogen deficiency symptoms. Estrogenic effects in the vaginal smears were noted at the end of five days following an average daily dose of 0.5 mg. Clinical relief of symptoms occurred within four to seven days on average daily doses varying between 0.15 and 0.45 mg. The majority of the patients were kept symptom-free on maintenance doses of 0.15 mg. daily. Ethinyl estradiol was found to be at least ten times as effective as estradiol administered orally.

Eighteen per cent of the cases developed nausea or epigastric discomfort in doses as low as 0.15 to 0.45 mg. per day. These unpleasant reactions, as in the case of stilbestrol, in our opinion detract from the value of this estrogen for therapeutic purposes. This compound, however, deserves further study in order to determine and eliminate the causes of the unpleasant side reactions.

Sublingual Administration of Estradiol in Propylene Glycol Solution—At present, estrogen maintenance therapy is most commonly administered by the oral route. Absorption of estrogens from the gastrointestinal tract is not satisfactory. For instance, judged by vaginal smear reactions, only about one-tenth of ingested estradiol appears to be effective. This makes oral therapy rather expensive. We have, therefore, attempted to administer estrogens through other routes. Estradiol is absorbed through the skin,¹¹ but there are obvious objections to this method. The vaginal route is effective in some patients but is not satisfactory in the majority of parous women, since much of the material is lost from the vagina and many women object to vaginal medication for esthetic reasons.

Recently, we have reported on the absorption of estradiol, in solution in propylene glycol, from the sublingual space.¹² We have found evidence in the vaginal smears of estrogenic effects within three or four days and with surprisingly small doses. In postmenopausal and castrated women with characteristic estrogen deficiency smears, estrogenic effects were noted at the end of one week with daily doses of 0.2 to 0.3 mg. The solution contains 0.5 mg. of α -estradiol per cubic centimeter of propylene glycol. Most satisfactory results were obtained by instilling 4 drops under the tongue and instructing the patient not to swallow for five minutes thereafter. This procedure is repeated several times daily. Once the clinical symptoms are

controlled, the patients have been maintained on as little as 0.1 mg. (1,200 rat units) per day of estradiol.

We have since employed this method of administering estrogens in a series of 42 cases with encouraging results. This method has some objections. It requires the intelligent cooperation of the patient, since the drops must be taken three or four times daily and the patient must be mindful not to swallow for at least five minutes after their sublingual instillation. In some "nervous" patients it is rather difficult to insure observance of these directions. Excessive salivation may interfere with absorption, although medication with atropine controls this satisfactorily. The chief advantage of sublingual administration lies in its effectiveness in small doses.

None of the patients reported any untoward reactions from the propylene glycol. Although a number of experimental studies have been reported in animals and humans attesting to the absence of toxicity of propylene glycol,¹³⁻¹⁵ further studies should be conducted in order to determine what the effect of continued administration would be, before recommending this method for general use.

Implantation of Crystals and Pellets of Estrogens—Two years ago before this Society, we presented a preliminary report on the implantation of estradiol crystals into menopausal patients.⁴ This method of administering estrogens was undertaken to determine whether it was possible to prolong the therapeutic effects of estrogenic hormone and obviate the necessity for frequent injections. Since then, we have implanted over 150 patients. We have attempted to supplement our evaluation of the clinical effectiveness of the implanted hormone by objective methods, viz. (a) duration of pituitary inhibition (as indicated by suppression of gonadotropic hormone production) and (b) duration of estrogenic effects in the vaginal mucosa (as indicated by vaginal smears and biopsies) and endometrium.

For this purpose we have used doses varying from 4 to 50 mg. of estradiol, estradiol benzoate, and estradiol dipropionate in the form of loose crystals as well as compressed pellets. Some phases of this study have already been reported.^{13, 14, 16, 17}

Prolonged Action on Pituitary, Genital Tract and Symptoms—These studies have revealed (a) that by the implantation of estrogen crystals gonadotropic hormone secretion may be suppressed for as long as ninety

role in the normal sex hormone economy of the female

There is considerable evidence in support of this concept. Thus, it has been shown by a number of investigators that normal adult women excrete significant amounts of androgens (26 international units per day as compared to an average of 40 international units per day by men)⁷³⁻⁷⁴ On the basis of these and related observations, the theory of androgen-gynecogen balance has been formulated "In the normal, sexually mature women, gynecogens and androgens are conceived as being in a state of dynamic balance, giving rise to the normal female secondary sex characteristics and normal menstruation. The equilibrium, however, may be upset in one direction or the other. If the gynecogens become dominant, either as a result of a qualitative or quantitative deficiency in androgens or because of an excessive production of gynecogens, the resulting imbalance would be manifested clinically by menorrhagia, metrorrhagia, premenstrual tension, mastopathies, and dysmenorrhea, separately or in various combinations

"If, on the other hand, the androgen influence were to predominate, the clinical picture would consist of oligomenorrhea or amenorrhea and arrhenomimetic phenomena. It is obvious that in such a dynamic system similar biologic and clinical effects may result from an excess of the one as from a deficiency of the opposing factor. It is tempting to accept this theory of a dynamic gynecogen-androgen balance since it appears, at present, to offer a solution to the riddle of functional gynecologic disorders."⁷⁵

Pregnenolone—This compound possesses a unique variety of biologic properties. In animals, it has progestomimetic, some estromimetic, and slight andromimetic action. It is, furthermore, active when administered orally.⁷⁶

In a series of 20 cyclical women, treated orally with doses varying from 30 to 60 mg per day over periods of one to two months, none of the suppressive (antigynecogenic) effects, which can be so strikingly produced by testosterone propionate and methyl testosterone, were observed. Menstruation was never suppressed and no estrogen deficiency phenomena appeared. Furthermore, in no instance did arrhenomimetic phenomena develop.⁷⁷

When administered orally to postmenopausal women after adequate priming with estrogens, gestational changes were pro-

duced with doses of 300 to 600 mg, administered over periods of one to two weeks.⁷⁸

In pregnenolone, we have available an orally active substance that has a progesterone-like action. We have found it helpful in some types of dysmenorrhea and in premenstrual tension. It has proved ineffective, in our hands, in functional menometrorrhagia.

The use of pregnenolone has been advocated in the treatment of threatened and habitual abortion.⁷⁹ However, recent studies by Hamblen⁸⁰ shed considerable doubt on the value of progesterone therapy in these conditions.

Recent Advances in Gonadotropin Therapy

Gonadotropins—Ever since gonadotropic extracts have become available for therapeutic use, gynecologists have been interested in attempting to demonstrate gonadotropic effects in humans. Many reports have appeared purporting to prove such effects. Unfortunately, the majority of these reports were solely of a clinical nature and presented no conclusive morphologic evidence of gonadotropic effect on the ovaries. In 1933, Geist⁸¹ described atretic follicles with hemorrhage in women treated with chorionic gonadotropin. In a carefully controlled study of the effects of gonadotropins on human ovaries, Ross⁸² and Hamblen⁸³ failed to find evidence of induced ovulation and reported the finding of regressive changes in these ovaries. Recently, Brown, *et al.*,⁸⁴ have described atrophy of the endometrium, in women with normal menstrual cycles, following prolonged treatment with chorionic gonadotropin. In the past two years several enthusiastic reports have appeared describing the production of ovulation by means of the gonadotropin of pregnant mares' serum.⁷⁹⁻⁸¹ We have used three different brands of the same hormone (Anteron—Schering, Gonadogen—Upjohn, Gonadin—Cutter) in a variety of doses, intravenously as well as intramuscularly, but we could not demonstrate to our satisfaction conclusive evidence of induced ovulation. Recently, Mazer and Ravetz⁸⁵ have reported striking gonadotropic effects in the ovaries of women treated with a combination of hypophyseal "synergist" and chorionic gonadotropin (Synapoidin—Parke, Davis). We have noted similar histologic reactions in women following the administration of combinations of hypophyseal "synergist"⁸⁶ and

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the same as for functional menorrhagia. Satisfactory results are frequently obtained with smaller doses (100 to 200 mg of testosterone propionate) administered during the latter two weeks of the cycle.^{49 57 58}

Ovulation Pain and Bleeding Four to six doses of 25 mg each, given at two-day intervals, beginning on the second to fifth day of the cycle, has proved effective.⁴⁹

Premenstrual Tension Symptoms are almost invariably relieved with 25 mg, two or three times weekly, beginning on the tenth to fifteenth day of the cycle and continued to within two or three days of menstruation.⁴⁹

Premenstrual Mastopathies The swelling, pain, and tenderness usually respond to 10 mg, twice weekly, beginning on the tenth day of the cycle. It may be necessary to increase the dose in some cases. In the majority of the foregoing conditions it has been found advisable to continue administration of the hormone for three consecutive cycles, reducing the dose by 25 to 50 per cent each month.

Postpartum Congestion of Breasts Fifty milligrams daily, for three days, beginning immediately after delivery, have been found effective in the majority of patients.

Safeguards Against Overdosage—Although the threshold for arrhenomimetic effects has been found to be 500 to 600 mg, occasionally one encounters patients who appear to be unusually susceptible and will develop hypertrichosis or acne after smaller doses. The hirsuties is likely to occur in dark-complexioned individuals with an inherent tendency to hypertrichiasis. Likewise, individuals who have had acne may experience a recurrence even with therapeutic doses. Fortunately, the incidence of these complications is so low with the therapeutic dose that the chance of their occurrence need not be considered a deterrent in the use of androgens as therapeutic agents in women.

Value of Vaginal Smears in Avoiding Arrhenomimetic Effects—During the course of our studies it was observed that the vaginal smears would frequently reveal signs of estrogen deficiency before any clinical evidence of overdosage was noted. Making use of this observation, we have found it of value to take vaginal smears weekly during the course of androgen therapy. At the first sign of androgen effect^{29 35} in the vaginal smears, androgen therapy should be discontinued.

The Value of Androgens in the Treatment of the Menopause—Androgens have been found valuable in the treatment of patients with

symptoms of the climacteric, who are still menstruating.⁴⁹ Administration of estrogens to such patients frequently aggravates the symptoms and causes menorrhagia. In these cases, 25 mg of testosterone propionate, twice weekly, are usually helpful in controlling the symptoms.

In addition, there are some menopause patients who are refractory to estrogen therapy. Such patients may show adequate estrogen response in the vaginal smears but remain symptomatically unimproved.⁴⁹ Some of these patients often experience symptomatic relief from androgens.

Oral Androgen Therapy—Methyl Testosterone This compound has been found to be a therapeutically effective androgen when administered by the oral route. Its biologic and therapeutic properties are similar to those of testosterone propionate. It appears to be approximately one-third to one-half as effective by mouth as testosterone propionate is when administered parenterally.⁴⁹ It has also been found to be absorbed in effective amounts when administered by skin incision, but this method of hormone treatment is unsatisfactory.

Sublingual Absorption of Testosterone in Propylene Glycol Solution—We have found that testosterone is absorbed in therapeutically effective amounts if administered sublingually in solution in propylene glycol. The solution contains 25 mg of testosterone per cubic centimeter of propylene glycol. In order to insure absorption of the hormone, the precautions advocated with regard to the use of estrogens in propylene glycol¹² must be observed.

Implantation of Crystals and Pellets of Testosterone and Testosterone Propionate—We have found this method of administering androgens of little value for clinical purposes. While a few patients with dysmenorrhea and menorrhagia experienced good therapeutic results for several months, the majority developed arrhenomimetic symptoms within a few weeks, necessitating excision of the pellets. With the availability of enteral and sublingual methods of administering androgens, it seems quite unnecessary to resort to implantation.

Theoretic Implications of Androgen Therapy—The therapeutic efficacy of androgens in a variety of gynecologic endocrinopathies raises the question as to whether the androgens have a purely pharmacologic action or act as a form of substitution therapy. If we assume the latter, then we are committed to the theory that androgens play a physiologic

role in the normal sex hormone economy of the female

There is considerable evidence in support of this concept. Thus, it has been shown by a number of investigators that normal adult women excrete significant amounts of androgens (26 international units per day as compared to an average of 40 international units per day by men)⁷³⁻⁷⁶ On the basis of these and related observations, the theory of androgen-gynecogen balance has been formulated. "In the normal, sexually mature women, gynecogens and androgens are conceived as being in a state of dynamic balance, giving rise to the normal female secondary sex characteristics and normal menstruation. The equilibrium, however, may be upset in one direction or the other. If the gynecogens become dominant, either as a result of a qualitative or quantitative deficiency in androgens or because of an excessive production of gynecogens, the resulting imbalance would be manifested clinically by menorrhagia, metrorrhagia, premenstrual tension, mastopathies, and dysmenorrhea, separately or in various combinations.

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chorionic gonadotropin (Pranturon—Scher-ing) The reactions elicited, however, do not appear to be physiologic in character and, in many instances, appear to border on the pathologic In our opinion, such stimulation of the parenchyma of the ovary and the follicular elements is abnormal and does not appear to serve any useful purpose *Until unequivocal morphologic evidence of an orderly gonadotropic action on the human ovary simulating the normal physiologic effect is demonstrated, clinical reports of therapeutic triumphs achieved with gonadotropins should be regarded skeptically* At present, the gonadotropins available for clinical use appear to have little, if any, therapeutic value in gynecology

Summary and Conclusions

1 A brief summary of recent advances in gynecologic hormone therapy is presented In the field of estrogen therapy, the therapeutic effectiveness of the following estrogenic compounds is described estradiol benzoate, estradiol dipropionate, stilbestrol and ethinyl estradiol

2 A preliminary report on the sublingual administration of estradiol in solution in propylene glycol is made

3 The value of estrogen implantation is described

4 Prophylactic implantation of estrogens when removal of both ovaries is necessary is recommended

5 The biologic and therapeutic properties of androgens are described and the value of androgen therapy in the treatment of functional menorrhagia, dysmenorrhea, premenstrual tension and premenstrual mastopathies, and the menopause is appraised

6 The therapeutic properties of an orally effective androgen, methyl testosterone, is described

7 The signs and symptoms of androgen overdosage are detailed and methods for preventing the arrhenomimetic phenomena are described

8 The biologic and therapeutic properties of pregnenolone, an orally active progestomimetic compound, are described

9 The therapeutic value of the gonadotropic hormones is briefly reviewed

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NINE OUT OF EVERY TEN YOUTHS IN NYA POSSESS HEALTH DEFECTS

"While about 80 per cent of the young people employed by the National Youth Administration are fit for any type of work, nine out of every ten have health defects, most of which can be remedied provided suitable treatment is made available, according to preliminary statistics compiled under the health program of the National Youth Administration," a report in the Medical Preparedness Section of the *Journal of the American Medical Association* for May 31 states.

"These figures are based on the results of medical examinations of 10,000 NYA workers made by local practicing doctors and dentists who have been employed by the National Youth Administration to do this work. The records tabulated to date reflect the health needs of youth as seen by physicians from twenty-one states representing all geographic regions of the United States.

"With the cooperation of the medical profession as well as of federal and state health authorities, the National Youth Administration's health program now operates in all states. The basis of this health program, which is an important part of the defense work of this agency, is a medical examination which facilitates assignment of youth to suitable work activities and at the same time discloses to young people their need for remedial treatment.

"While the primary aim of the NYA is to provide young people with basic work experience to fit them for jobs in private industry, it has a logical concern with building up the health and physical fitness of its employees, both from the standpoint of the national welfare and as the largest employer of youth labor in the country.

"Dental care was recommended for 56 per cent of those examined. This is made up of recommendations made by both physicians and dentists. If dentists had been used to make the dental examination for each youth, the figure would have been considerably higher, since among youths examined by dentists 72 per cent were reported as having carious teeth, while physicians reported only 47 per cent.

"It is of interest that, in 10 per cent of the youth, each had from ten to thirty decayed teeth.

"Tonsillectomy [surgical removal of the tonsils] was recommended for 15 per cent.

"Refraction [of the eyes] was recommended for 15 per cent.

"Special diets were recommended for 10 per cent.

"Minor surgery was recommended for 2 per cent.

"Venereal disease treatment was recommended for 2 per cent. If a youth is already under treatment for a venereal disease, many physicians do not recommend treatment in this type of examination, although they do note presence of the disease.

"Major surgery was recommended for 2 per cent.

"Hookworm treatment was recommended for 2 per cent. Considering youth from the southern states only, treatment for hookworm disease and hookworm infection was recommended for 5 per cent.

"Slightly over 5 per cent were described as being malnourished, while obesity was present in 3 per cent.

"Organic heart disease was reported in almost 3 per cent of those examined.

"In this first group to be reported, tuberculin testing and chest roentgenograms had not been completed, however, 95 cases of pulmonary tuberculosis were reported, of which 26 were active.

"The eight leading health defects for which corrections have been recommended can largely be taken care of in clinics or offices of physicians and dentists. Only a small group need hospitalization. Most of the health defects noted do not affect, at this early age, the ability of approximately 80 per cent of these youth to work, but many of the defects will influence unfavorably the selection of many youths by private industry and will, at a slightly later stage of life, decidedly affect the efficiency of the individual on any job, as well as eligibility for military service."

MULTIPLE NECROTIZING SKIN LESIONS IN CHRONIC ULCERATIVE COLITIS

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THE following report is of interest because of the unusual character of the complications in chronic ulcerative colitis. There occurred during the exacerbation phase of a previously existing chronic ulcerative colitis multiple areas of skin necrosis, generally discrete but sometimes confluent, often appearing in successive crops, rapidly progressive and distinctly phagedenic in character. The distribution of the lesions was chiefly over the chest, abdomen, buttocks, back, and extremities. Starting as a small, painful, reddened papule, there was exhibited within approximately twenty-four hours a central zone of necrosis and pus surrounded by a dark red, angry-looking halo that gradually tapered off into the surrounding normal-appearing skin. In all instances the floor of the ulcer was formed by muscle or fascia, the general picture resembling that seen in *Bacillus histolyticus* infection where massive necrosis and dissolution of tissue occur almost overnight. In our patients, however, the necrosis did not involve the muscle. The lesions described were usually widely separated and discrete but sometimes continued to advance rapidly until contiguous ulcers (5 by 5 and 5 by 10 cm. in 1 case) were separated by a bridge of 7 cm. of intact skin, which, however, was completely undermined and finally broke down to form a single large confluent ulcer. Multiple fresh lesions appeared, varying in size, shape, and stage of development, as long as there was evidence of progressive pathology. With healing, soft pink granulation tissue covered the floor of the ulcers and delicate bluish epithelium grew from the margins of intact skin. Occasionally, temporary regression took place, portions of the young epithelium becoming necrotic. In general, advancing skin lesions were concomitant with the height of intestinal pathology and healing was synchronous with subsidence of intestinal symptoms and signs. The end result was a slightly depressed, dimpled, round or oval scar at the site of each ulcer, often with a marginal area of brownish pigmentation.

In no case were the necrotizing skin lesions ever present during the remission phase or in previous exacerbations of the chronic ulcerative colitis.

Besides the rapidly necrotizing character

of the skin lesions, two striking features were the depth and extension of subcutaneous involvement. Indeed, in some areas healthy-appearing skin adjacent to an ulcer was seen to be totally undermined with subsequent death en masse. This was particularly manifest in Case 3 in whom a deep cellulitis of the cervical tissues occurred with final breaking down of the overlying skin and subcutis, producing an immense ulcer covering the right side of the neck and upper anterior aspect of the chest.

We have seen the sternocleidomastoid, biceps, trapezius and gluteus maximus laid bare in part by these rapidly progressive, histolytic, or phagedenic ulcers. While most of them occurred in hairy regions, in Case 1 they also involved the cornea and conjunctiva. The time of healing varied from approximately one week in the case of small discrete ulcers to several months for the largest ones. Cultural studies revealed *Bacillus coli*, *Staphylococcus aureus*, and a nonhemolytic streptococcus in Cases 1, 2, and 3, respectively. No anaerobic organisms were recovered.

Case Report

Case 1—E. W., a single woman, aged 22, referred by Dr. Samuel C. Levine, was admitted to the Bronx Hospital on April 11, 1939. Approximately four months previous she had begun to complain of frequent abdominal cramps and bowel movements. These increased in severity with minor remissions until frank blood and pus were noted in the stools. There was marked anorexia and loss of weight. At the time of her admission she exhibited the characteristic symptoms and signs of a severe chronic ulcerative colitis in the exacerbation phase, with frequent watery, purulent, and bloody diarrheal discharges. The major pathology in the bowel extended from the cecum to the sigmoid, with somewhat lesser involvement beyond this point. The blood revealed an agglutination titer of 1:320 against Flexner Y, and dysentery bacteriophage was found in the feces. Toxic systemic manifestations with articular or periarticular involvement, chiefly of the upper extremities, were prominent clinical features. A number of discrete, deep necrotic ulcers were present over the buttocks, trunk, and lower extremities. Successive crops appeared until sixteen were present, varying somewhat in appearance depending upon their stage of development. In

general, each was surrounded by a dark red hemorrhagic halo and was exceedingly painful to the touch. The skin, arthritic and general toxic manifestations appeared to reach their peak when the intestinal infection was at its height. The temperature was 104.5 F with gradual decline to 101 F. Six blood counts revealed leukocytes totaling 17,400 to 22,500 per cubic millimeter, with segmented forms varying from 56 to 80 per cent and nonsegmented forms from 1 to 22 per cent. With recedence of the colitis the other symptoms and signs gradually disappeared and the temperature fell to normal. She was discharged on May 2, 1939. On December 10, 1939, she was admitted to Mt Sinai Hospital* because of recurring symptoms. The clinical course was similar to that just described. The skin lesions were distributed over the left leg and left side of the trunk. In addition, there was an ulcer of the left cornea, above the limbus, which progressed rapidly with formation of a deep slough extending toward the center of the cornea. Simular ulcers developed in the right upper palpebral conjunctiva. Both the corneal and conjunctival ulcers were poorly vascularized, the tissue appearing to have "just melted away." The temperature varied from 99 to 103 F and there were four to eight fluid bowel movements daily. The blood count was as follows: hemoglobin, 75 per cent, leukocytes, 16,000 per cubic millimeter, polymorphonuclear neutrophils segmented forms 16 per cent, nonsegmented forms 44 per cent, lymphocytes, 24 per cent, mononuclear cells, 10 per cent, eosinophils, 3 per cent, plasma cells, 3 per cent. There was marked toxic granulation of the polymorphonuclear cells. Healing of the necrotizing skin lesions was again synchronous with subsidence of intestinal symptoms and signs. Cultures of the pus in the ulcerated areas revealed *B. coli*. Anaerobic cultures were negative.

Case 2—I. D., a married man, aged 35, was referred by Drs Frank M. Frankfeldt and David Zahn. In July, 1937, the patient, his wife and child were involved in a hotel outbreak at Rockaway Park, Long Island, characterized by abdominal cramps and diarrhea. Almost all of the residents were affected. While no accurate data are available regarding the nature of this outbreak, it occurred in an endemic area of bacillary dysentery, and the incubation period and clinical picture were highly suggestive of the disease. Three months later there was a recurrence of symptoms in the patient and his wife, bloody movements occurring in both, the latter being affected for two weeks. Since then the patient has suffered from repeated attacks, increasing in severity and duration. On May 14, 1938, the time of his first consultation, sigmoidoscopy revealed the typical picture of chronic ulcerative colitis. This period corresponded to that noted in the follow-up studies of the Jersey City epi-

demic of Flexner dysentery, 10.7 per cent of the patients developing chronic ulcerative colitis or distal ileitis by the end of 8 to 12 months.¹ Of further interest in this connection is the recent recurrence (December, 1940) of bloody movements in the wife and diarrhea in the child. Under appropriate treatment there was an apparently complete recession of the ulcerative colitis in the husband without any evident signs of pseudopolyposis, intramural fibrosis, or luminal stenosis. In the spring of 1940 the patient had a serious infection of both middle ears eventually necessitating bilateral mastoid operations. He ran a stormy clinical course with a poor general physical state as an aftermath. During this time, signs of recurring intestinal manifestations were noted which appeared to yield temporarily to neoprontosil, which was being used for treatment of the ear infections. Within a few weeks, however, the ulcerative colitis reappeared in a much more aggravated form than ever before. It was at this time that the multiple, focal, or discrete ulcers appeared, chiefly on the face, chest, lower extremities, and neck. New lesions were noted almost daily during the height of their evolution. Necrosis was rapid and deep and on the anterior aspect of the chest a large geographic denudation of the skin was produced, measuring approximately 15 by 10 cm in size. This was produced by the confluence of two rather widely separated, but rapidly spreading, ulcers, which gave the impression that the skin was melting away. The intervening normal appearing skin was completely undermined for a distance of approximately 7 cm before breaking down. The pectoral muscle fibers could be discerned. With subsidence of the intestinal symptoms and signs the ulcers healed rapidly, leaving slightly depressed dimpled scars. On December 13, 1940, the ulcer on the chest and another on the right thigh were still present but were almost completely epithelialized. It is of interest that at the height of the recurring colitis, when massive intestinal hemorrhages occurred, small focal areas of necrosis were noted in the advancing edge of marginal epithelium. A culture of the pus bathing the ulcerated areas disclosed a *Staph. aureus*. The blood culture was negative.

Case 3—N. S., a single man, aged 20, was referred by Dr Alfred M. Wise. In March, 1934, the patient noted bloody stools for the first time, accompanied by indefinite generalized abdominal discomfort. Recurring attacks increased in severity and duration until July 6, 1934, when the patient was seized with severe right lower quadrant pain accompanied by bloody, diarrheal movements. On July 8 the temperature rose to 105 F, and a laparotomy was performed by Dr J. Landy with a presumptive diagnosis of acute appendicitis. The findings were a severe ulceration of the entire colon with a rather doubtful involvement of the appendix. The patient was subsequently treated at two other hospitals for chronic ulcerative colitis with no appreciable

* I am indebted to Dr George Baehr for the follow-up data in this case.

effects On September 8, 1940, following an attack of sore throat, there developed a severe cellulitis with lymphadenitis on the right side of the neck With it there was an increase in intestinal manifestations The cervical infection advanced rapidly with marked dissolution and necrosis en masse of the overlying skin until a single, large, ulcerated area covered the entire right side of the neck and upper third of the anterior aspect of the chest The floor was formed by the muscles and fascia of the neck and chest Healing of this ulcer proceeded steadily with beginning recession of intestinal symptoms At the time of consultation on December 20, 1940, several discrete healed ulcers were present in addition to the large area, described above, which was still denuded to a size of approximately 15 by 20 cm A nonhemolytic streptococcus was recovered from the area of cervical cellulitis, throat, and feces Anaerobic wound cultures proved negative Blood cultures were also negative

Therapy and Comment

The therapeutic procedures that appeared to be most helpful may be summarized as follows, starting with those of greatest effectiveness

1 Repeated whole blood transfusions, more particularly from a donor immunized with dysentery-colitis vaccine² More recently, I have had comparable results in severe toxic cases of chronic ulcerative colitis by the repeated use of polyvalent desiccated (lyophil) plasma (Sharpe and Dohme) Its use was predicated upon the assumption that some degree of passive immunization was afforded by the intravenous or intramuscular injection of pooled homologous plasma fractions of the blood from 25 to 50 donors Other advantages were availability without the necessity of blood grouping, compatibility or Kahn tests, the reported adequate preservation of antibodies and complement by the lyophil process, and control of plasma concentration The last consideration is of some value in hypoproteinemia and nutritional edema, conditions sometimes encountered in chronic ulcerative colitis Where profuse intestinal hemorrhage and anemia are present, whole blood supplemented by plasma transfusions may prove more effective than either used alone

2 High-vitamin diet supplemented by oral and parenteral administration of large amounts of synthetic vitamins, particularly B complex, C, and A

3 Intestinal oxygenation³

4 The local use of sulfathiazole powder dusted upon the ulcerated area A 2-per cent

alcoholic solution of gentian violet applied locally occasionally aborted an early lesion.

5 Sulfonamide (sulfathiazole, neoprontosil, sulfanilamide) medication. These should be used with great caution since, in addition to the known toxic manifestations, I have occasionally noted hemorrhagic necrosis of the intestinal mucosa following their administration

6 Local dressings of boric acid ointment are applied thickly to protect the granulating areas and borders of epithelization. Frequent exposure of large ulcers to the air or sunlamp also appears to favor healing

The pathogenesis of the peculiar necrotizing skin lesions can only be surmised from a careful study of the clinical aspects of the cases described It appears quite evident that a single bacterial agent is not involved, since cultures revealed different organisms in each instance The general clinical features indicate a close relationship between the skin lesions and exacerbation phase of the intestinal infection, since the former were never seen in the remission phase when the patient's general health was at a relatively high level We have previously pointed out that the exacerbation and remission phases of chronic ulcerative colitis often corresponded to low and high degrees of immunity⁴ While this statement was predicated to some extent upon serologic studies, the limitations of such studies are well recognized⁵ However, many clinical observations lend support to this view, since recurring attacks of ulcerative colitis are often precipitated by unrelated extraenteric infections such as those involving the upper part of the respiratory tract Once the exacerbation phase develops there occurs a rapid undermining of the nutritive economy due to a vicious combination of anorexia, frequent bowel movements, and toxemia The result is a state of nutritional imbalance involving excessive loss of body fluids, salts, vitamins, fats, and other elements at a time when they are most needed to enable the body to combat the intestinal infection Their adequate replacement is essential for the maximum immunologic response involved in recovery One of the most important components appears to be the vitamins The deficiency is of the multiple vitamin type (A, C, and B complex) With adequate replacement, prompt resolution of the skin lesions occurred in our cases, but not until the intestinal infection also began to recede Therefore, we feel that while the skin ulcers appear to be due largely to a vitamin deficiency with

poor tissue resistance both are essentially secondary manifestations of the ulcerative colitis. The necrotizing lesions have been seen thus far only in the severe forms of chronic ulcerative colitis. Their rarity is attested by an incidence rate of less than 0.3 per cent in my series.

Summary

Necrotizing phagedenic skin lesions occur

as a complication of severe forms of chronic ulcerative colitis. They appear to be associated with loss and inadequate replacement of the essential nutritive elements of the body, particularly vitamins.

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PUT THE DOCTOR ON A PAR WITH OTHER CREDITORS

The average run of citizens who take automobiles to a garage for overhauling or repairs do not expect to recover their property until they have paid the mechanic's bill. How different is their attitude toward the doctor's indebtedness!

The doctor is mechanic, engineer, and all-around repairman for the ailing human frame, yet he rarely gets paid when his work is done. According to an editorial some time ago in *America*, the Metropolitan Life Insurance Company made an interesting survey among its millions of policyholders. The survey reports that the average annual payment of the average family to its physician was \$140. Only the doctor himself knows when and after what delays this sum was finally paid to him.

The commentator says wisely, "Now the cost of repairing the human machine engenders one of the most interesting problems of the day. It is a most important factor in the family budget. From very many parts of the country the report has come that after the bill for medical services has been rendered, the family physician, who floated into the house with healing upon his angelic wings, assumes the menacing part of a Shylock.

"That medical, hospital, and surgical fees do impose a terrific burden upon some families is beyond all question. To many a man working for a salary, the physician's order to go to a hospital for an operation is worse than a decree in bankruptcy. It means, in many instances, the loss of his job, and a period in which bills pile up so high that he must work for the rest of his life to pay them.

"This fact is recognized by the professional For several years medical, surgical, and hospital committees have been surveying the field, and as they are animated by an honest purpose we can rely upon an accurate and intelligent diagnosis of a very serious social problem. But it has already become apparent that the reason for many a heavy hospital bill is the fact that the patient and his family have demanded unnecessary, and even luxurious, accommodations and special service. Even when they are sick, some people never lose their ambition to keep up with the family of Jones.

"One aspect of this problem should not be lost sight of. If some physicians demand, and collect exorbitant fees, others never receive the modest fees which they ask. Every profession has its list of nonpaying clients, but the physicians probably have the longest catalogue. Men who have been snatched from what Mr. Toots would designate the Cold and Silent Tomb are so jubilant that they are quite unable to think of anything so prosaic as a bill for professional services rendered. Besides, now that the crisis is safely passed, they are too busy arranging a trip to Europe.

"Most families have a tale of the Exorbitant Physician. There is such a creature. But there is also the physician who comes home tired out after a long day, to wonder where he can scrape enough money, together to meet his office rent. In his behalf, we would urge the obligation, sanctioned by all law, human and Divine, to pay one's debts as promptly as possible."

—*Illinois Medical Journal*

The Nueces Valley District [Texas] Dental Society, composed of thirty-three members, has an organization which is called the "Chicago Club," in which each member pays one dollar per month and at the end of the year numbers are drawn allowing two winners. These two winners divide the money to pay their expenses to the Chicago Dental Midwinter Meeting for that year. They are obliged to bring detailed reports of the meeting to the Society.

Great longevity without health is much more than an individual tragedy. Contrariwise, increased longevity can be made an incalculably valuable asset to the commonwealth if the potentialities of the elderly are wisely guided. A period of intellectual conquest may be dawning. Man at last will live long enough to have time to think.—*Dr. Edward J. Stegitz, consultant in gerontology, National Institute of Health, Bethesda, Maryland*

SODIUM PHOSPHATE IN THE TREATMENT OF DIABETES

A Clinical Study

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SODIUM phosphate is a preserver of muscular energy. This was first demonstrated by Embden, and the salt was administered on its largest scale to the fighting personnel of the German Army during the War of 1914-1918.

Since then considerable evidence has accumulated to prove that sodium phosphate in subluxative doses can retard muscular fatigue and exert a benign influence on the metabolism of the body.

I began its use as a therapeutic agent against the complaint of "weakness" in 1920. Among those who were placed under this treatment were several diabetic patients in whom weakness was a persistent complaint. It was soon observed that under this therapy the glycosuria of the latter became reduced, that their general well-being was distinctly elevated, and that they could tolerate an increased carbohydrate intake without materially increasing the amount of urinary or blood sugar.

In the first few years of insulin I did not discontinue the use of sodium phosphate for most of my diabetic patients who either refused or were in no position to undergo the hormonal treatment. In 1925 one of our patients who had been using insulin (about 20 units daily) for four weeks went into insulin shock, followed by mild delirium, one hour after what would today be estimated at about a 20-unit dose. She was a woman aged 54, with diabetes of four years' standing, who was careful of her diet even while taking sodium phosphate. Following the shock-effect, she refused to take any more insulin and was not seen for several months. She continued to feel well on the now more liberal diet but was taking more sodium phosphate.

That it was the sodium phosphate that intensified the action of insulin in the first case was demonstrated a year later when another of my diabetic patients (a woman, aged 50, with diabetes for three to four years) had a similar accident, under almost exactly the same conditions as obtained in the one previously mentioned. Thereafter, proof of the synergistic action of sodium phosphate to insulin was made manifest in increasing numbers, the case herewith recorded being a common occurrence.

Case Report

S. R., a moderately diabetic woman, aged 48, (first blood sugar 260, now 140-190, first urine $4\frac{1}{2}$ per cent, lately 0.5 to 1.3 per cent) shows a comparatively sugar-free urine when she uses 10 units of insulin before dinner, three times a week, and 2 Gm. of sodium phosphate a day. Therapy in this case was begun with 30 units of insulin divided in 3 *ante cibum* doses, and 3 Gm. of sodium phosphate daily. At the end of ten days, the urine was sugar-free and the blood content on a fasting stomach was 150. The insulin was then brought down to 20 units, which occasionally had to be remitted because of evidence of hypoglycemia in spite of a satisfactory diet. Four weeks later insulin was established at 10 units once a day. Mild insulin shock occurred two hours after the last meal of the day under the uninterrupted use of the 10-unit dose for fifty-eight days. She was taken off the daily insulin and the dosage of the sodium phosphate was made more frequent, but still, at the end of another week of treatment, there was evidence of shock after the fifth successive insulin injection.

Since that period (four years at this writing) this patient feels comfortable under 10 units every other day if she takes the sodium phosphate, otherwise it becomes necessary to increase the insulin to 30 units a day, for at least six days, in order to keep her urine sugar-free. Without the sodium phosphate for a few days and even with her full complement of insulin, this patient complains of weakness and nervousness.

It is because many diabetic sufferers are in no position to receive insulin injections according to directions and, as a consequence, are but inadequately treated that I have used sodium phosphate as an additive treatment in 104 diabetic patients (46 men) during a period of twelve years. Of that number I have reason to believe that only about 30 per cent are consistent users of insulin as directed.

To prove the status of this salt in sugar metabolism, sugar tolerance tests were conducted on 12 nondiabetic patients (whose blood sugar content was slightly over 120 on the fasting stomach) who were all past the age of 40, on 14 with higher sugar levels in their blood, and on 8 diabetic women under insulin control. From eight to twelve days after the administration of sodium phosphate, retesting

for sugar tolerance showed that close to 90 per cent had an increased sugar tolerance on the test days ranging from about 20 to over 90 per cent. As is to be expected the non-diabetics gave the better figures.

Twenty-four of the more moderately diabetic patients under the simultaneous administration of phosphate of soda and insulin increased their carbohydrate intake (including such foods as ice cream and chocolate) from one-fifth to one-third of their usual allowance without any perceptible effect on the blood sugar content or urinary sugar excretion.

Pruritis is one of the most common first complaints of hyperglycemia. The word "hyperglycemia" is used advisedly, since many of these patients at first have but few of the classic symptoms of diabetes. It was the chief complaint in 83 out of 604 diabetic patients observed in the past twenty-six years. It was present as a secondary complaint in 48 and occurred at one time or another in 84 others.

In this class of patients the blood sugar content is invariably higher than the urinary sugar. In fact, the arbitrary ratio that I have been able to establish among my private patients (1 in the blood to 1.5 in the urine) is more than reversed in patients whose chief complaint is pruritis.

Four of these patients (3 men, 1 woman) showed, respectively, at the first examination blood sugar, 4.6, urine, trace, blood sugar, 33, urine, 0, blood sugar, 51, urine, 0.2 (woman), blood sugar, 25, urine, trace.

Virtually all of the more severe cases of pruritis when first seen presented evidence of marked focal infection or had recently overcome an infection or suffered for a long time from a chronic focus, especially in the sin-

Prior to the advent of insulin, the customary mode of the treatment of pruritis due to hyperglycemia was the immediate deprivation of all forms of sugar, the reduction of starches, and the administration of pancreatic extract and alkalies in the form of bicarbonate of soda. Success depended a great deal on the treatment of any focus of infection. The results varied from fair to poor.

Better results followed the addition of sodium phosphate to the above treatment but was partially discarded in a number of patients when it was discovered that insulin worked far more rapidly than any other form of treatment. In fact, insulin is almost an immediate specific in pruritis. However, where insulin was not immediately available,

sodium phosphate alone gave us better results than any other form of therapy.

Two of the most common complaints of the undertreated diabetic patient are dryness of the mouth and dull headache. Sodium phosphate seems to act almost as a specific in the relief of these complaints. An outstanding example of this action of the salt was demonstrated in one of our patients (Mrs. S., aged 49, a rather severe diabetic sufferer of fifteen years' duration) who averages 40 units of insulin a day with sodium phosphate but 60 to 80 without this salt. While on a cruise she found herself without insulin and could obtain none for forty-eight hours. Dryness of the mouth and headache became intense in twelve hours. The dryness was not relieved by copious draughts of water, although the headache was somewhat modified by acetyl salicylate.

The ingestion of approximately 2 Gm. of sodium phosphate in divided doses gave relief from the dryness in about eight hours, while the headache disappeared entirely. The appetite, which failed from the first omission of the insulin, now returned.

In the past eight years 44 of the 104 diabetics (of whom 81 were women and on whom these observations are built) "juggle," so to speak, their insulin with the sodium phosphate. Some who are on doses of 10 units a day or under sometimes give up the insulin in favor of the phosphate for weeks at a time, the criterion being the reappearance of traces of sugar in the urine.

Two female patients, aged 38 and 46, respectively, with rather severe diabetes (first blood content in both, 48 per cent) and under insulin for years, went over six weeks at one time and nearly eight weeks at another without insulin but on sodium phosphate. In both periods and on an unchanged diet, there was only a moderate increase in the blood sugar, while urinary sugar occasionally ran up to 4 per cent in one and 2.8 in the older patient. No acetone or diacetic acid could be ascertained in fourteen examinations of the urine in each of both periods.

Moderate mildly diabetic patients under sodium phosphate treatment not uncommonly cut their insulin treatment down to a third or less for long periods at a time, none, however, to the best of my knowledge, ever developed acidosis if they were careful not to go beyond certain limitations.

One man, aged 50, known to have had diabetes with hypertension for about four years, can get along with 10 to 15 units of

TABLE I

	1st Following Morning	2nd	3rd	4th	5th	6th	7th
Average blood sugar content on fasting stomach of first noninsulin day—2.1%	2.4		2.8		2.4	2.4	2.6
Average sugar in urine collected 24 hours of the last day of insulin—0.3%		1.4	1.5	1.4	1.5	1.6	1.6

insulin a week while taking sodium phosphate, but he requires 10 daily units without the salt. In this case, in spite of a more liberal diet, hypoglycemia symptoms develop after six consecutive daily 10-unit doses of insulin if he takes the sodium phosphate at the same time.

In the course of the past twelve years, 24 ambulatory diabetic patients—selected because of recent onset of symptoms, closer age period, and for presumed reliability in following orders—cooperated in tests to prove the effects of sodium phosphate on their blood and urinary sugar contents while still on increased diets but without using insulin. The test period was of eight days' duration, 33 others who underwent the insulin deprivation for the same length of time had urinary tests only. All patients (of whom 48 were women) had exactly thirty days of insulin treatment (average 30 units per day), and none had taken sodium phosphate prior to the first test. The average age was 44. The average presumable date of onset of symptoms was barely more than two months, the average first blood sugar content was 3.35 to 3.5, the average urinary content, 4.2. No patient took less than $2\frac{1}{2}$ Gm. or more than 3 Gm. of sodium phosphate a day during the test period. All blood tests were made on the fasting stomach, the urine consisted of mixed small quantities of each voidance in twenty-four hours. The individual variations were negligible and are omitted from Table 1.

On their own initiative, 14 patients continued the therapy for several days more, 6 of them for as long as two weeks, and 2 others for as long as three weeks. No further tests, however, were performed except on the 2 patients who went without insulin for three weeks. In these and on the day prior to the reinstitution of insulin the blood sugar content was 2.8 and 2.6 per cent, respectively, their blood sugar at the first visit was 3.85 and 3.2 per cent, respectively, and at the end of the first eight-day series of tests the blood sugar was 1.4 and 1.6 per cent, respectively. The last urinary examination made on the last day of their noninsulin therapy showed a sugar content of 1.8 and 1.2 per cent, respectively.

All were free from symptoms and several

TABLE 2

	2nd Day	3rd	4th	5th	6th	8th
Blood	1.6		1.6		1.8	1.8
Urine	0.4	0.4	0.6	0.62	0.7	0.64

expressed the satisfaction of not having to take hypodermic medication. So similar were the conditions in the patients selected for the tests that the individual variations never went beyond 20 per cent above or below the average established for the group as a whole.

Eight of the above group (all women) were retested six months after the first study (average blood sugar content was 1.5, urinary sugar was 0.3 before being taken off the insulin) in exactly the same manner as on the prior occasion, and Table 2 gives the average of a week.

To prove whether sodium phosphate had the same muscular energizing effect in diabetic, as in nondiabetic, patients, all were, at various times, requested to note the effects on their physical capacity under nearly identical physical conditions as season, diet, exercise, etc., under insulin alone, under sodium phosphate alone, and in a combination of the two. Few knew the name of the salt, the information being withheld in order to eliminate a mental factor.

Twelve of these thought themselves better off under insulin alone, 7, under sodium phosphate alone, and the remainder, under the combination of sodium phosphate and insulin as against insulin alone, stating that they would not be without either.

Conclusions

Sodium phosphate was found to affect favorably the physical and mental status of diabetic patients. In subluxative doses this salt is of undoubted benefit in all forms of fatigue, especially that affecting the skeletal muscles. This salt is a preserver of sugar as proved by its effect on both the blood sugar content and excretion in the urine of 104 diabetic patients and 16 normal patients with low sugar tolerance. It appears to enhance the action of insulin but is in no sense a substitute for the latter, for sodium phosphate does not create extra insulin. A significant

fact is that insulin utilizes phosphates in the conversion of glucose into glycogen

I have given moderate doses of sodium phosphate to over 1,500 patients, including those with diabetes, in the past nineteen years and have never noted any deleterious effect. At least 10 per cent of our patients have taken this salt more or less constantly for over ten years. There is preponderant clinical evidence that sodium phosphate in small repeated doses is productive of increased physical and mental power.

In moderate doses sodium phosphate augments the combining power of CO_2 and conserves the excretion of fluids in almost all true diabetic cases (the diabetic patient is readily dehydrated). On the other hand, because of its mild chologenic action, small doses of sodium phosphate minimize the invariable constipation of these patients.

The administration of sodium phosphate raises the threshold of sugar excretion in the urine and, thus, spares a great deal of anguish to the diabetic patients who are accustomed to test their urine themselves and who become mentally distressed when the color is even only slightly greenish, they then get into real trouble by suddenly limiting their diets to the point of exhaustion and acidosis. Regardless of the extent of the glycemia, sodium phosphate lowers the amount excreted in the urine.

Sodium phosphate is a protection to the ambulatory diabetic patient, who, for some reason or other is unable to follow a strict regimen both as to diet and the use of insulin. It is, however, no substitute for insulin but apparently a good synergist to the hormone and an adjuvant to the general treatment of diabetes.

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PSYCHOTHERAPY IN THE GENERAL PRACTITIONER'S OFFICE

"Emotional Factors in the Etiology and Therapy of Medical Conditions" was the subject of a recent address by Louis H. Twyeffort, consulting psychiatrist to the Medical Division of the University Hospital, and psychiatrist to the Pennsylvania Hospital Institute, University of Pennsylvania. He said, in part, that owing to neglect in the past of this phase of therapy in the curriculum of most medical schools, there is a confused idea as to the true etiology of functional disorders, also a completely inadequate comprehension on the part of the patient. There is need to understand the "total person" in treating disease processes. In every illness there is both an anatomic and a mental component, each of which should be properly evaluated.

The majority of functional disorders are primarily psychologically conditioned. It is unfortunate to call them, for instance, "cardiac neuroses," or "gastrointestinal neuroses," as these disorders are actually part manifestations of a larger disorder involving the entire personality. Incapacitating personality traits and attitudes, as well as that which happens to the individual, will cause emotional turmoil and its physiologic repercussion. These traits frequently result, not from inheritance, but from early conditioning by parental attitudes. The overdominant parent may foster overdependency in the child, for example. Such inadequacy will give rise to strong emotions frequently operative on a subconscious level, yet still very active in producing chronic tension states and their physical manifestations.

A comprehensive appreciation of functional illness must remain anatomically oriented. The hypothalamus serves as a bridge between psyche and soma and acts as the chief effector of the emotions by way of the autonomic nervous system. Hence emotional perturbation reflects itself principally in those organs containing

smooth muscle fibers and in disturbance of endocrine glandular tissue.

It is being increasingly suspected that functional disturbances may play a significant role in bringing about actual structural changes and tissue damage. Psychiatric contributions have supplemented our knowledge of the etiology of many cases of peptic ulcer, mucous colitis, etc.

Diagnosis of psychogenesis is established usually in indirect fashion. A thorough personality study should be part of any thorough medical approach to such a case.

No surgery should ever be undertaken "in the hope of relieving" some functional disorder without a complete preliminary psychiatric examination and evaluation.

Psychotherapy in the simpler functional disorders is not a prerogative solely of the neuropsychiatrist but should be handled in the general practitioner's office. By promoting understanding of the meaning of his symptoms and the nature of his conflicts, the clinician may gradually show his patient how strong emotions cause physiologic dysfunctions, with the result that his symptoms may soon have an entirely new meaning for him.

During the treatment the energies of repressed emotional conflicts are converted from their somatic channels into psychic channels, permitting a constructive solution of the conflict through the medium of speech and volition. *The successfully treated patient speaks less in terms of his symptoms and more in terms of the situations and inner attitudes which cause their appearance.* Where it becomes necessary to refer refractive cases for specialized treatment, the physician can help the patient by acquainting him and his family with the reasons for the need of specialized help, as well as by emphasizing the time, effort, and cooperation necessary for successful results.

—Pennsylvania M J, August, 1941

RESIN DERMATITIS FROM NEW PAJAMAS AND NEW SHORTS

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IT IS our intention to amplify, by means of this report, an article¹ published under the title, "An Outbreak of Dermatitis from New Resin Fabric Finishes."

In the several months after the opening of college late in September, 1940, 5 students were seen with severe acute dermatitis, the onset of which followed the wearing of new shorts or pajamas that had not been laundered. The dermatitis appeared in from a few hours to two days after donning the new clothing. In all of the cases there was a period of about twenty-four hours of penile and scrotal irritation followed by a rash on the inner sides of the thighs which soon became quite generalized over the body except on the head.

The penile irritation consisted of an erythematous macular area extending from the meatus down the foreskin to the most dependent part of the latter. Where the tip of the foreskin made contact with the scrotum there was a similar erythematous area. Both regions were slightly inflamed and they burned and itched. During the next twelve to twenty-four hours, edema of the penis and scrotum occurred. Both became immense in size, and the former looked as though a pin puncture would result in the loss of a considerable amount of fluid.

The eruption on the extremities and trunk was maculopapular, and the presence of scratch marks, due to the intense pruritus, resulted somewhat in the appearance of scabies. The interdigital spaces and the shaft of the penis were free of maculopapular lesions, however. The pruritus was almost intolerable before treatment, the patients complained bitterly of their discomfort and, in several cases, frantically scratched to relieve the irritation.

Four of the 5 patients had histories of various types of allergy. One patient while in the infirmary manifested a mild allergic reaction to ephedrine, which had been administered to him.

Treatment

The following measures were found to be efficacious in these cases of resin dermatitis and were almost routinely used in all of the

group. The patients were admitted to the Cornell University Infirmary, the offending clothing was removed and was replaced by pajamas that had been previously worn without the occurrence of skin irritation. A house diet was provided. A histaminase compound (torantil) was given by mouth up to 25 units four times a day. Calcium gluconate was given in 22½-grain doses three times a day. Starch baths were used during the daytime to allay the pruritus, and calamine lotion with phenol was available at night for local application. These measures gave relief in a short time, and the edema and the eruption subsided simultaneously.

One of the men had put on newly purchased shorts and started by automobile to New York City. After he had driven about 100 miles, the irritation of the skin and genitalia became so disagreeable that he sought a physician's advice and treatment. The administration of epinephrine solution and the application of calamine lotion gave temporary relief. The trip was completed, and several days later upon his return to the university he put on a pair of shorts that also had been newly purchased and not laundered. Within a few hours there was an acute exacerbation of the previous eruption which had somewhat subsided but had not completely disappeared. This was the only patient in which epinephrine had been used. The administration of ephedrine to another of the group resulted in marked edema of the eyelids.

In the original article by Schwartz, *et al.*,¹ the suggestion was made that clothing that might contain the resin should be laundered before wearing. One of our patients, after recovery from his dermatitis, laundered the newly purchased pajamas and upon wearing the suit had a return of his dermatitis, although each laundering seemed to remove more and more of the offending material and lessened the amount of resulting dermatitis. He and others in the group finally discarded the garments or returned them to the merchants from whom they had been purchased. Patch tests were not performed because of the liability of securing a negative response after such a severe allergic response and because of the desire to return the undamaged garments to the merchants for a monetary re-

¹From the Student Health Clinic and Cornell Infirmary, Cornell University.

bate The histories of the cases, the similarity of the symptoms and signs in all, the universal response to the outlined therapy, plus the recurrence of the dermatitis in 2 cases upon re-wearing of the new garments seemed sufficient, with Schwartz's report of widely disseminated cases of a similar affection, to warrant the diagnosis of resin dermatitis

We agree with the observation of Schwartz

and his collaborators that white garments may offend in some persons, as well as colored or striped clothing, and that the garments were not the product of one manufacturing company

Reference

1. Schwartz, et al J A M A. 115 908-911 (Sept. 14) 1940.

ROCKEFELLER FOUNDATION MAKES \$75,000 GRANT TO FINANCE THREE-YEAR STUDY OF HEALTH AGENCIES IN UNITED STATES

The National Health Council, which has served for the past two decades as a clearing house for national voluntary organizations promoting better health, is undertaking a comprehensive study of the activities of all private health agencies in the United States under a special grant of \$75,000 from the Rockefeller Foundation, it is announced by Dr Kendall Emerson, president of the Council.

"Great strides have been made in health education during the past twenty or thirty years," said Dr Emerson, "and the American public has come to understand that it is much more economical, as well as far more humane, to prevent disease than to cure it. Communities throughout the country have built up many excellent private health services devoted to the prevention of illness, and we have now reached a point where it seems desirable to appraise this whole field of endeavor in order that our efforts may be even more effective."

"The study will take about three years to complete, and the report will answer such broad questions as the following: What are the various types of state and local voluntary health agencies? What fields do they cover? What methods of cooperation with official health agencies have they established? What do they cost to operate? What types of health work lead to the greatest active participation on the part of the citizens?"

Dr Louis I. Dublin, chairman of a special committee of the National Health Council, which has been making plans for this study, said "It is particularly appropriate that the Rockefeller Foundation should finance such an under-

taking, for it was the support of the Foundation which made possible the establishment of the National Health Council in 1921, and since then the Foundation has shown unmistakable interest in various Council activities. We are especially pleased that the Foundation has met our request to grant a leave of absence to its vice-president, Mr Selskar M. Gunn, one of the world's outstanding authorities on public health problems, to direct this study."

Mr Gunn returned to America recently after a long stay abroad as director of the European headquarters of the Rockefeller Foundation in Paris, now closed because of the war. Previously, he had been in charge of the Foundation's program of rural reconstruction in China.

The active members of the National Health Council include the following: American Red Cross, American Public Health Association, American Eugenics Society, American Heart Association, American Social Hygiene Association, American Society for the Control of Cancer, American Society for the Hard of Hearing, Conference of State and Provincial Health Authorities of North America, Maternity Center Association, National Committee of Health Council Executives, National Committee for Mental Hygiene, National Organization for Public Health Nursing, National Society for the Prevention of Blindness, and the National Tuberculosis Association.

There are two associate members—the American Nurses' Association and the Foundation for Positive Health—and there are two advisory members—the United States Children's Bureau and the United States Public Health Service.

YOUR BEST FRIEND WON'T TELL YOU

Some people walk in their sleep at night. Others sleepwalk straight around the clock. The former may get up a little dull in the morning. The latter are dull all day, and even their best friends won't tell them how dull they are. They

are intellectual sleepwalkers who wander haltingly from cradle to grave, their most exciting powers unexercised—*Stringfellow Barr, president of St. John's College, in the magazine Tomorrow*

History of Medicine

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HELMHOLTZ IN MEDICINE

ELLIOTT B. HAGUE, M.D., Buffalo, New York

IN 1921 scientific societies in this country and abroad celebrated the centenary of the birth of Hermann Ludwig von Helmholtz. Honored during his lifetime for outstanding achievements in the field of physics, it was he, more than any other, who laid the broad foundations of the science of biophysics. His contributions to thermodynamics, hydrodynamics, electrophysiology, acoustics, physiologic optics, and experimental psychology were of exceptional magnitude.

His early inclination would have led him to devote himself entirely to the field of physics. In his maturity he was always associated actively with institutions of higher learning, and his scientific productions were of such great importance to the then rapidly developing field of physiology that he was immediately recognized, and has since been always honored, as one of the principal architects of the basic preclinical sciences. Moreover, in his later years he devoted himself more entirely to the field of pure physics where his discoveries and pronouncements so greatly opened up the channels of modern scientific methods that his contributions to the field of clinical medicine are relatively obscured and forgotten.

The year 1942 will mark the one-hundredth anniversary of Helmholtz' graduation from the Royal Medical and Surgical Institute in Berlin, where he received a medical education gratis with the understanding that after his graduation he was to serve as a surgeon in the Prussian Army. In this inaugural thesis, presented when he was 21 years of age, he demonstrated for the first time the connection between nerve fibers and nerve cells. It was only eight years previously that nerve cells had been discovered in ganglia and, although no connection between nerve corpuscles and nerve fibers had been observed, one of the greatest of Helmholtz' teachers had held it likely that such a connection existed.

This youthful discovery is regarded by physiologists as laying much of the groundwork of neurologic histology. The previous year he had spent the autumn vacation in the Charité Hospital prostrated by typhoid fever. As a medical student he was cared for without charge, and on his recovery he found that his small stipend, barely enough to cover the expenses of his living, had accumulated sufficiently to enable him to purchase a microscope. In his own words: "The instrument was not beautiful, yet I was able to recognize by its means the prolongations of the ganglionic cells in the invertebrata, which I described in my dissertation."

Helmholtz' contributions to medical science came in the years closely following his graduation in medicine. As I shall briefly list them, I think that the breadth and depth of their medical relevance may surprise you.

For the purposes of this paper it would seem more pertinent to limit biographic data elsewhere available and to touch upon a few unconnected medical topics, illuminated directly or indirectly by Helmholtz' work and comment. Except for his brief army experience, Helmholtz never practiced medicine. He was always reticent in regard to his experience with army discipline, although we do know that he regarded self-discipline more efficacious than that imposed from without. In his later years, it is known, he resented the fact that civilians were subject to pushing and shoving on the sidewalks of Berlin by the uniformed servants of the state. To us it appears important that official circles quickly recognized his actual worth and that he was relieved of the necessity of wasting his mental substance in medical routine.

Perhaps the only real justification for a paper on this subject lies in the need we have today for the same clear thinking that illuminates Helmholtz' method. In the period of his youth, many medical dogmas, long held unquestionable, were beginning to be doubted. As he put it: "It was a period of fermenta-

tion, of the fight between learned tradition and the new spirit of natural science, which would have no more of tradition, but wished to depend upon individual experience" Doubt of the older dogmas as they affected medical treatment led naturally to the position of therapeutic nihilism, and we have had little more to offer our patients, until observations in the new natural sciences have accumulated and, today, are giving medical progress most of its momentum

In his popular writings, Helmholtz frequently recurred to the influence that dogma and deductive thinking played in current medical practice, as well as in the sciences allied to medicine, in his earlier years. Medical deductions based on faulty assumptions were, he was aware, the fundamental error of former medical times. It was, indeed, heresy to carry out original observations either in the laboratory, where investigative work was deemed beneath the dignity of the titled pedagogue, or in the sick room, where it was not considered good form to perform oscultation or percussion or to use a sphygmomanometer or the ophthalmoscope. In his time, medical knowledge based upon authority alone, tinged with a psychologic anthropomorphism, was not easily dislodged, and Helmholtz, possibly better than any other man of his time, popularized the need for widespread medical research and, by so doing, gave it impetus

It is today a curious fact that legislative bodies feel called upon to distinguish between scientific medicine based only upon careful observation of many facts and certain varieties of cult medicine. What Helmholtz said of cult medicine is probably as true today as when he said it in 1877. He pointed out that medical cults assume that it is possible to refer all diseases to a single explanation. "One characteristic of the schools which built up a system on such hypotheses, which they assumed as dogmas, is the tolerance of expression which I have already partially mentioned. One who works upon a well-ascertained foundation may readily admit an error. He loses by so doing nothing more than that in which he erred. If, however, the starting point has been placed upon an hypothesis, which either appears clouded by authority, or is only chosen because it agrees with that which is wished to be believed true, any crack may then hopelessly destroy the whole fabric of conviction."

Although Helmholtz expressed a consistent and calm optimism in regard to medical

progress, this man, who was at once one of the greatest of our medical geniuses and at the same time a keen observer and analyst of social tendencies, realized that eternal vigilance is a real duty if the status of medical practice is to be maintained. "But do not think, gentlemen, that the struggle is at an end. As long as there are people of such astounding conceit as to imagine that they can effect, by a few clever strokes, that which man can otherwise only hope to achieve by toilsome labor, hypotheses will be stated which, propounded as dogmas, at once promise to solve all riddles. And as long as there are people who believe implicitly in that which they wish to be true, so long will the hypotheses of the former find credence. Both classes will certainly not die out, and to the latter the majority will always belong."

In his later years, Helmholtz was singularly distinguished by numerous honors bestowed upon him by institutions of higher learning and by the state of which he was always a loyal citizen, loyal enough, it may be said, to recognize certain superior qualities more inherent in other races than in his own, while at the same time he staunchly maintained the existence of certain fine qualities common in his own countrymen.

We may doubt that under any circumstances his inclination would have led him to develop in himself the qualities that enable the physician to apply the healing arts, and yet it is as one of us that he spoke when he said "I am glad that I am able to address an assembly consisting almost entirely of medical men. Medicine was the intellectual home in which I grew up, and even the emigrant best understands, and is best understood by, his native land." I consider the study of medicine to have been the training which preached more impressively and more convincingly than any other could have done, the everlasting principles of scientific work, principles which are so simple and yet so easily forgotten, so clear, and yet, always hidden by a deceptive veil."

In view of the importance and amplitude of the scientific productions of Hermann von Helmholtz, it is, perhaps, surprising that so little is known of the life and more intimate personal qualities of the man. Although there are several biographies and although some of his students are living today, there is a certain paucity of material that relates well as biography. It appears to have been on this account that one of his biographers, the Scotch physiologist, McKendrick, limits himself

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Helmholtz' contributions to medical science came in the years closely following his graduation in medicine. As I shall briefly list them, I think that the breadth and depth of their medical relevance may surprise you.

For the purposes of this paper it would seem more pertinent to limit biographic data elsewhere available and to touch upon a few unconnected medical topics, illuminated directly or indirectly by Helmholtz' work and comment. Except for his brief army experience, Helmholtz never practiced medicine. He was always reticent in regard to his experience with army discipline, although we do know that he regarded self-discipline more efficacious than that imposed from without. In his later years, it is known, he resented the fact that civilians were subject to pushing and shoving on the sidewalks of Berlin by the uniformed servants of the state. To us it appears important that official circles quickly recognized his actual worth and that he was relieved of the necessity of wasting his mental substance in medical routine.

Perhaps the only real justification for a paper on this subject lies in the need we have today for the same clear thinking that illuminates Helmholtz' method. In the period of his youth, many medical dogmas, long held unquestionable, were beginning to be doubted. As he put it "It was a period of fermenta-

writings Among his achievements the following are to our interest discovery of the way to measure the angle of aperture in a microscope, leading to important improvement of that instrument, contributions to the analyses and interpretations of heart sounds, a clear clinical description of hay fever—from which he himself suffered—reporting organisms, believed to be pollen granules, which he found in the nasal mucosa, the classical analysis of the action of the muscles of the upper arm. He also founded the science of acoustics and gave the definitive anatomic description of the inner ear

The broad foundations of the field of ophthalmology as we know it today were laid by three men Bowman, of England, whose various anatomic discoveries bear his name, Donders, of Holland, and the German, von Graefe, who from the date of their first meeting in 1851 were in frequent correspondence with one another—"a constant source of stimulus and encouragement, each to the other two" The year of their first meeting was the year that Helmholtz announced his invention of the ophthalmoscope This instrument was received with enthusiasm by von Graefe and by the other leaders in the field of ophthalmology As we know, with it, observation of the interior of the eyeball was made clinically possible for the first time Through the ophthalmoscope the physician was able to observe multiform manifestations of ocular disease and, beyond that, by visualizing changes in the retinal tissues he may contribute to the diagnosis and prognosis of many systemic diseases The ophthalmoscope helps to maintain the close association between the oculist and the internist, an association that we prize partly on account of historical considerations Bowman in his time and, in our time, Sir Henry Smith, to whom more than any other we owe our growing esteem of the intracapsular method of cataract extraction, practiced general, as well as ophthalmic, surgery The triumvirate of Bowman, Donders, and von Graefe, all men of medicine, led us to our present understanding and treatment of the relief of eyestrain

In the invention of the ophthalmometer Helmholtz gave us an instrument that led us to a proper understanding of the cause of astigmatism and enriched our diagnostic armamentarium Among his other ocular

contributions were original and important studies on ocular movements, an interpretation of ocular accommodation, work of primary importance on color sensation and color blindness, and the use of oblique illumination for clinical purposes in his invention

Indeed, so greatly and in so many ways did he contribute to medicine that we are apt to forget or to minimize how much we now depend upon a number of his discoveries

One of the personal characteristics of Helmholtz was modesty He took less pride in his invention of the ophthalmoscope than in his development of brilliant pupils Although he considered it his democratic duty to indicate to the general public the bearing that the new science had on their way of life and, although his public addresses—such as "On Thought in Medicine," "Academic Freedom in the German Universities," and "On the Origin of a Planetary System"—are models of clarity of exposition, he was not popular as a classroom teacher because of the supposed obscurity of his style and the difficulty of following his mathematic explanations

It was on this account that for some time some physicians refused to use the ophthalmoscope, believing that an understanding of his mathematic explanation of the construction of the instrument must precede its clinical use Helmholtz used higher mathematics as the simplest method precisely to express definite relationships and, along with Riemann, preceded Einstein in quite a complete development of the concept of the fourth dimension

Among his pupils were Hertz, the inventor of the hertzian wave used in wireless telegraphy and radio transmission, Steinway, whose instruments won prizes for their mechanical and acoustic excellence, the American psychologist, G Stanley Hall, and the internationally known ophthalmologist, Casey Wood Hermann Knapp knew him, and Dr Nicholas Murray Butler attended his lectures to observe his teaching methods

One must agree with G Stanley Hall that no brief sketch can do justice to a man whose attainments added so greatly to the sum of scientific medical knowledge To the medical historian, the intellectual stature and scientific discretion of Helmholtz are indeed remarkable

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largely to a chronologic account of Helmholtz' scientific inquiries. In preface he writes "Helmholtz was one whose private life was known only to a few, and he would have instinctively recoiled from biographical revelations of a purely personal character. At the same time, I have endeavored to give the reader some idea of the man—calm, placid, reserved, thoughtful—whose love of truth, yearning of the spirit of inquiry, and great intellectual powers gave him a place in the front ranks of the interpreters of Nature. A life full of intellectual activity, creative, ever productive, could not contain much in the way of trivial accident."

In a biography of Hermann von Helmholtz, Hermann Knapp wrote "The father of Hermann Ludwig von Helmholtz was born in 1792 in Berlin. He chose philology for his support, participated as voluntary chasseur in the campaign against Napoleon in 1813 and 1814, entered the philosophical faculty in Berlin University in 1815, and was called as a teacher to the (Lyceum) in Potsdam, where he received the appointment as professor in 1828. In October, 1820, he married Caroline Penn, the twenty-three-year-old daughter of a Hanoverian artillery officer, a direct descendant of William Penn, the founder of the State of Pennsylvania. Caroline Penn Helmholtz, whose maternal grandmother came of a family of French refugees, was remembered as 'a plain, intelligent and refined woman.' Her speech was direct, her judgment clear, with a kind of divination, apparently without premeditation, she quickly penetrated difficult problems to their remotest consequences, and expressed her opinion in the simplest form."

Hermann von Helmholtz, the eldest of 5 children, was born in Potsdam on August 21, 1821. Frequently ill for the first seven years of his life, he was not considered a precocious child, although his father—a teacher in philology, philosophy, and mathematics—tutored him until he was well enough to attend school. Distinct in his recollections of these earlier years was his inability to remember facts or phrases unless they were organized or related in logical sequences of thought. He always found it impossible to commit prose passages to memory, he found it difficult to remember idiomatic expressions and irregular grammatic forms, this lack of memory for disconnected facts showed itself even in the difficulty of distinguishing between left and right. It is surely noteworthy that a man who correlated and interpreted data dealing with the most fundamental factors of our existence

was able to cope with his environment only as he correlated—only as he interpreted and rationalized.

The year following his graduation in medicine he was a military physician at Potsdam. In 1848 he taught anatomy in Berlin. This teaching appointment followed his announcement of mathematic proof of the doctrine of conservation of energy. When he first informally shared the details of this demonstration with several of his contemporaries, the magnitude of his findings was immediately recognized. DuBois Reymond, widely known in the field of electrophysiology and a former schoolmate of Helmholtz and, with him, one of the cofounders of the Berlin Physical Society, immediately acclaimed this paper as an historical document. When Helmholtz later read it before the Berlin Physical Society he made the occasion the most memorable in the Society's annals, and "manifested himself forthwith as a physicomathematician capable of solving any problem." This paper, which "showed his capacity as a mathematical physicist," furnished the foundation upon which our present sciences of physics and chemistry rest, namely "that all modes of energy are capable of transformation from one to the other but are indestructible and impossible of creation. This had actually been demonstrated for physiological processes by the Heilbronn physician, Robert Mayer, whose priority in this regard Helmholtz recognized, and, for physical phenomena by Joule." but Helmholtz gave it universal application. In 1849 he was made professor of physiology and pathology at Konigsberg. In 1855 he was called to the chair of anatomy and physiology at Bonn and, in 1858, to that of physiology at Heidelberg. His official connection with the teaching of the vital sciences terminated in 1871 when he became professor of physics in the University of Berlin, in 1877 when the Physico-Technical Institute was founded at Charlottenberg, largely at his own recommendation and advice Helmholtz was chosen as its first director. In 1891 the seventieth anniversary of his birth was celebrated in Berlin with great ceremony, in which representatives of all parts of the German Empire and from many countries participated. By the Emperor he was pronounced "Germany's foremost citizen, No. 1 public friend."

It would greatly exceed the limits of this sketch to indicate in detail the scope of Helmholtz' work in the various fields of science or even in medicine. You will find thirty items alone in a bibliography of his ophthalmologic

a medical journal. He also spent a portion of his time in Montreal where his father and brother were then practicing. In 1858 he left Plattsburg for good and set up practice in Montreal. He spent the rest of his life there and contributed many articles to the *British-American Journal*. He died at the early age of 42 on December 19, 1863.

The *Lancet*

In April, 1850, Horace Nelson published the first number of his medical journal. It was called the *Northern Lancet and Gazette of Legal Medicine* and bore on its masthead the motto "Truth Without Fear." The place of publication was Plattsburg. Nelson published this journal continuously for the next six years, but its name and form were changed from time to time.

In July, 1851, one number of a weekly supplement, *American Lancet*, was published. There were no other numbers. Publication of two medical journals was too impossible a task for a man as active as Dr. Nelson. This was also the year in which the St. Lawrence School of Medicine was founded.

In October, 1851, the name was changed to *Nelson's Northern Lancet and American Journal of Medical Jurisprudence*. In April, 1853, it was changed again, this time to *Nelson's American Lancet, A Monthly Journal of Practical Medicine*. The space devoted to legal medicine had been getting smaller and smaller, and this department was finally dropped. In December, 1855, the *Lancet* was changed from a monthly to a weekly publication. This was not an improvement. The quality of its articles and the number of subscribers speedily declined. The last number was published on June 2, 1856.

At the height of its career, the *Lancet* had an exceedingly wide circulation. Letters from readers would indicate that it circulated in at least twenty states—from Vermont down to Georgia in the east and as far west as Wisconsin and Louisiana. However, as new journals serving these areas sprang up, these readers gradually dropped out. In the last feeble year of its life, the *Lancet's* circulation was practically confined to New York and Vermont.

Prior to 1855 the *Lancet* was quite an impressive journal. Its mainstays were the reports of lectures delivered in the various large medical schools. Two series of such reports deserve special mention.

Alfred Nelson, Horace's brother, was a student in the University of London. From

him Horace obtained notes of Professor Anthony Todd Thomson's lectures on medical jurisprudence. These notes were well edited and occupied fully half of each issue of the *Lancet*. They constituted its only claim to being a journal of legal medicine. When Alfred returned to Montreal in 1853, jurisprudence was dropped from the title page.

An even greater attraction were the reports of "Clinical Lectures on Diseases of Women and Children" by Dr. Gunning S. Bedford of New York University. These were reported to the *Lancet* by various medical students. They were not well edited and varied, depending on the reporter, from short, sketchy abstracts to flowery rewritings of the students' notes. These lectures appeared in almost every issue of the journal until 1855, when Dr. Bedford published a book on the subject. This marks the beginning of the *Lancet's* decline.

In addition to these lectures, the *Lancet* contained occasional articles by other authors and numerous articles by the several doctors of the Nelson family. The rest of its pages were taken up with letters from readers, abstracts from other journals, editorials, and whatever miscellaneous matter Dr. Nelson chose to throw in.

Some of this miscellaneous matter seems singularly out of place in a medical journal. For example, "Coffee is largely adulterated with corn, peas, potato-flour and rye, chestnuts, acorns, etc., and to give it a high and rich color sugar is burnt with these substances. Purchase the raw coffee, burn and prepare it, and you will avoid the imposition."

There is neither time nor space enough in this paper to detail the medical and scientific matter that the *Lancet* contained. It was no different from the common medical knowledge of the period which has been amply presented by other writers. One item, however, a reprint from the *London Lancet* of March, 1851, is worthy of note. It is as follows:

"The formation of cancerous growths will be retarded by the application of cold and, were it at all possible to bring down the temperature of an entire growth below the vegetating point, it would inevitably be killed. Apply $\frac{1}{2}$ pound of broken ice, with $\frac{1}{4}$ pound of common salt, keeping it on for five minutes. The skin becomes white in a few seconds. The sore on the breast becomes clean and even healthy in appearance."

Last year the refrigeration treatment of cancer was reintroduced. Yet, it was prac-

HORACE NELSON AND HIS *LANCET*

LEONARD J SCHIFF, M D , Plattsburg, New York

THIS is the story of an obscure man who practiced medicine in a small town in northern New York one hundred years ago. He published a medical journal which, after six years of vicissitude, died. He started a medical school which did not last two sessions. His name is known now but to a few, his journal to a still smaller number, and his abortive medical school only to one or two. Yet, in his lifetime, his voice rang loud and clear and his journal was known from Vermont to Ohio. He was a member of a large and active family of doctors, men who were not only doctors but great political figures.

This man's story has never been told. It is worth telling, for it is an interesting tale. But more than that it is a graphic picture of medicine one hundred years ago.

The Man

Horace Nelson was born in Canada in 1821. The family was distantly related to the famous admiral. Horace's father, Wolfred Nelson, and his uncle, Robert Nelson, were both doctors and apparently good ones. However, they were much more interested in politics than medicine, they were revolutionists and French-Canadian sympathizers in the unsuccessful revolution of 1837. As a matter of fact, Wolfred actually took part in the fighting. His forces were speedily overcome and, following his arrest, he was sent to Bermuda. In 1838 he was allowed to come to the United States and in 1845, following the general amnesty, returned to Canada. He again took up politics and eventually became mayor of Montreal.

Horace was also arrested in 1837 but was allowed to come to the United States. Evidence would indicate that the family settled in Plattsburg, New York, which is about 20 miles from the Canadian border. A great many of the French-Canadian families now living in Plattsburg first came over here at that time.

Horace was 16 at the time of emigration. Nothing is known about the next six years of his life. In 1843 he graduated from the University of New York Medical College and presumably returned to Plattsburg to practice.

It is quite evident from his writings that at least part of his time for the next fifteen years was spent practicing medicine in Plattsburg. It is also quite evident that he was not in this city all of the time.

From 1845 to 1847 he was professor of anatomy and physiology in L'École de Médecine et de Chirurgie of Montreal. This school, after many ups and downs, eventually became incorporated into the University of Montreal Medical College. In 1851, he helped to found the St Lawrence School of Medicine—also in Montreal—and occupied the chair of anatomy. This school lasted only one or two years. Dr Nelson's connection with it was even shorter, for early in 1852 he refers to himself as late professor of anatomy, etc.

Undaunted, however, he joined the faculty of the University of Vermont Medical School in 1853 as professor of theory and practice of medicine and pathology. He occupied this post until 1854, at which time he became professor of surgery and surgical jurisprudence. In 1855 this versatile teacher found it necessary to withdraw from the faculty because of "numerous professional engagements."

Such a varied multitude of teaching positions might be enough to satiate the average man, but Horace Nelson was not an average man. The desire to teach and to spread medical knowledge must have been strong in him. In June, 1854, the New York School of Practical Medicine at Plattsburg, New York, was opened. The professors were Dr Edward Kane, of Plattsburg, Professor Henry Erni, of Vermont, and Dr Horace Nelson, of Plattsburg. There is no doubt that the latter was the principal instigator and moving spirit behind the school. Unfortunately, after one session, the school disappeared. Its life was so brief that it is not even mentioned in the various histories of Plattsburg which deal with this period.

This ended Dr Nelson's teaching. In August, 1854, he was offered a post in the newly organized Atlanta (Georgia) Medical College which he refused. Not even Horace Nelson could commute between Atlanta and Plattsburg and publish a medical journal at the same time.

During all this time Dr Nelson was practicing medicine in Plattsburg and publishing

Case Report

REPORT OF A CASE OF PNEUMOCOCCUS TYPE XVIII MENINGITIS COMPLICATED BY SO-CALLED "SILENT MASTOID"

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IT WAS thought pertinent to report this case of *Pneumococcus* type XVIII meningitis because it presents some interesting features regarding the course of the disease which lend themselves to speculation concerning additional procedures that may have been followed. This case of pneumococcal meningitis was treated extensively with sulfapyridine and specific serum.

Case Report

J. L. B., a boy, aged 8 months, had *Pneumococcus* type XVIII meningitis.

Past and Family History—The child was born spontaneously at full term, he was an only child and his parents were living and well. He had never been ill and was well until the onset of the present illness on July 13, 1940.

Present Illness—At about 8:00 A.M. on July 13 the parents noted that the child had a temperature, was breathing rapidly, and was less playful than usual. At about noon of the following day the child began to have convulsions involving mainly the right side, and soon the convulsions became generalized, at which time the child was hospitalized.

Physical Examination on Admission—The child was well nourished and well developed and appeared acutely ill and pale. The respirations were rapid. The hands, arms, and legs moved continuously in an uncoordinated manner. There was slight opisthotonos and the neck was somewhat rigid. The abdomen was soft, with no palpable masses, the skin, clear, the throat, reddened. The pupils reacted to light sluggishly. Coarse moist rales could be heard at the right base of the chest. Both eardrums were injected and Kernig's signs were negative, the neck, Brudzinski was positive and the Babinski, doubtful. The patellar reflexes were active. The impression on admission was (1) lobar pneumonia, (2) acute tonsillitis, and (3) bilateral acute catarrhal otitis media.

The following day the child had generalized convulsions with clonic twitchings of the right arm and deviation of the eyes to the right. The neck was more rigid. A spinal tap done at this time revealed cloudily fluid and the culture yielded *Pneumococcus* type XVIII. This same organism was also recovered from the blood.

Treatment (see Chart 1)—The child was on sulfapyridine by mouth for the first eleven days in the hospital and, in addition, received for five days sulfapyridine intrathecally as 2 per cent solution of the sodium salt. At the same time

the child was given specific concentrated anti-pneumococcus rabbit serum* intramuscularly, intrathecally, and one dose intravenously. Sulfathiazole was given for three days when *Staphylococcus hemolyticus* was reported from the right ear culture. In all, the child received 843.5 grains of sulfapyridine (orally 793 grains, intrathecally 30.5 grains, as 2 per cent solution of the sodium salt, and intravenously 15 grains, as 5 per cent solution of the sodium salt) and 180 grains of sulfathiazole (by mouth only). In addition to the sulfonamide compounds, this child received a total of 1,215,000 units of specific concentrated rabbit serum (intramuscularly, 650,000 units, intrathecally, 540,000 units, and intravenously, 25,000 units).

A paracentesis of the right eardrum was performed on July 14 and again on the eighteenth, yielding blood each time. The left ear and mastoid were considered normal by the ear department. A right mastoidectomy was done on July 29. The mastoid appeared to be normal at operation. Culture from pus of the middle ear at operation showed *Pneumococcus* type XVIII. The child received two blood transfusions and other supportive therapy as indicated.

Course—The boy seemed to be improving under the treatment of sulfapyridine and specific serum until July 21 when his condition became critical. He continued to become worse after this date. Difficulty in deglutition was noted, and feeding and medication were given by gavage. A right mastoidectomy was advised because of the downhill course in spite of what appeared to be adequate therapy, but this was opposed because of the precarious condition of the patient and the "lack" of positive clinical evidence of mastoiditis. However, after roentgenologic studies of the mastoids indicated what was thought to be a right mastoiditis, the right mastoid was opened on July 29 and was found to be normal. The operation had no apparent effect on the course of the disease. The condition remained the same notwithstanding all therapy, and the child finally died on August 10, the twenty-ninth day of illness.

In spite of the large doses of the sulfonamide compounds used in this case (an infant of about 15 pounds) there was no vomiting, cyanosis, or other disturbing symptom that could be attributed to the exhibition of the drugs.

Laboratory—The results of blood counts, spinal and blood cultures, and the sulfapyridine determinations of the blood and spinal fluid are noted on Chart 1. The urine findings were negative. The microscopic spinal fluid examinations always revealed large numbers of white blood

Case presented at the Pediatric Staff Conference October 7, 1940.

From the pediatric service of Dr. J. M. Dobbins, St. John's Hospital, attending pediatrician and assistant attending pediatrician, respectively.

*The antipneumococcus serum used was obtained from the Department of Health, City of New York.

ticed (not quite so vigorously) one hundred years ago. To the historian nothing is entirely new.

The nineteenth century was a troublous time for doctors. Suits for malpractice in the case of fractures were apparently common. At any rate, they worried Dr. Nelson enough so that he devised an indemnity bond. In this bond the patient agreed to refrain from suits, actions, and judgments against the physician. If the patient or his legal representative would not sign such a bond, Nelson refused to take the case. He frequently published the bond in the *Lancet* as a warning and example to other physicians.

One of the most interesting features of the *Lancet* is the editorial department. Horace Nelson was a fighter. He carried on a continual editorial battle with doctors all over the country. Most of his opponents were the editors of other medical journals, but he also found time to criticize book reviewers, professors, druggists, lawyers, and many others. Practically every issue of the *Lancet* contains at least one angry or sarcastic editorial. Nelson was not a man who could hold his tongue. On the contrary, he seemed to take a perverse delight in exposing himself to battle. His greatest joy was to take a righteous stand and then fire away—it did not matter whom the bullets hit.

The most lengthy and vicious campaign was directed against David M. Reese, of New York. Reese had once been a minister but had left this profession (Nelson says, he was thrown out). He obtained a medical degree and began to publish a journal, *The New York Medical Gazette*. His particular enemies were the teachers at New York University—especially Dr. Valentine Mott. Now, Nelson was an alumnus of New York University and a former pupil of Mott's. Naturally he sprang to the defense. Reese had some friends who did not agree with Nelson, and so the weary battle dragged itself through all twelve volumes of the *Lancet*.

Another of Dr. Nelson's pet hates was the American Medical Association. Thus, he begins one editorial: "The Association met in St. Louis, on the 2nd day of May, and continued two days in Session. As usual, nothing

of any importance was transacted, and as we can better employ some half dozen pages than by copying the proceedings we will give a short abstract of what was done, leaving our Readers easy to find out what should have been done."

In the last few issues of the *Lancet* the editor describes a case that not only shows his nature but also gives a clue to the character of the period in which he lived. He was called by the coroner to examine the body of a man who had died two months after receiving a head injury. Dr. Nelson asserted that the patient had died not from the injury but because he had been "very unscientifically and injudiciously treated." Not only did he tell the coroner this, he published it in the *Lancet* (naming the doctor whom he accused), and he appeared at the trial as a witness for the man who struck the blow. The prisoner received a sentence of only three years as a result of this testimony. Naturally, this did not increase Nelson's popularity with the medical profession of Plattsburg, and it may be one of the reasons why he left that city, two years later, for Montreal.

Conclusion

This is the story of an active and restless man—a man who had to be always doing something. He was a bold man who took "Truth Without Fear" for his motto and tried to live up to it. But it is more than the story of a man; it is the story of an age in medical history—the nineteenth century.

The nineteenth century was a turbulent, hurly-burly century. It was a period of great vigor and expansion, with all the strife and tribulation that accompany growth. It saw the rise and fall of many medical schools and many journals. It was a time of outspoken acrimonious debate. American medicine was having growing pains.

The story of Horace Nelson and his *Lancet* is, I think, the story of the nineteenth century.

I wish to acknowledge the helpful assistance of Miss Maude E. Nesbit of the New York State Medical Library and Dr. W. W. Francis of the Osler Library, McGill University.

To be merry in the herte is a grete remedie for helth of the body.—*Bishop of Arusiens (1486)*

A college professor has discovered that cockroaches have no vitamin A.

cells with polymorphonucleus predominating. *X-Rays of Mastoids (July 27, 1940)*—X-rays showed a thickening of the sinus plate of the right mastoid with localized rarefaction within the petrous cells. The left mastoid was normal. The findings indicated right mastoiditis.

Autopsy

Brain.—Pia mater and dura were adherent. There was an enormous amount of thick yellow pus present over the entire brain which appeared to be organizing at the base. There was moderate internal hydrocephalus and the ventricles contained cloudy fluid.

Cranial Surfaces.—Both mastoids appeared to be normal, and both lateral sinuses were normal and without thrombi. Removal of the left temporal bone showed the middle and inner ear to be filled with thick yellowish purulent exudate. The ossicular chain was completely surrounded, exudate filling the entire cavity. No evidence of exudate was found in the region of the left internal auditory meatus, there was no localized cerebellar or subdural abscess over the petrous portion of the temporal bone. The mastoid portion of the left temporal bone was necrotic. The right mastoid area was entirely normal.

Anatomic Diagnosis.—(1) Acute suppurative otitis media, left, (2) acute suppurative mastoiditis, left, (3) *Pneumococcus* type XVIII meningitis, and (4) acute parenchymatous degeneration of the liver.

Discussion

One always appears to be the wiser in retrospection rather than in prospect. However, in reviewing this case it appears that the treatment could have been improved by doing a bilateral mastoidectomy at the first relapse despite normal findings by x-rays and the ear department. This child had received what we thought was adequate serum and drug therapy and appeared to be on the way to recovery when there was a sharp turn for the worse and the child became critical. This indicated the presence of a focus that was feeding virulent bacteria into the system, and the most likely site of such a focus must have been either or both mastoids or inner ears. It has been demonstrated that the prognosis in pneumococcal meningitis with a secondary focus is worse than in a so-called primary meningitis¹ and that the sulfonamide compounds are not effective when bone is involved.² One should also bear in mind when dealing with infants that a mastoid can be "silent," i.e., without any apparent clinical manifestations of mastoiditis, that x-ray studies are deceptive, and that with the more recent use of the sulfonamide compounds there have been many reports of

masking of symptoms of mastoiditis, as may have very well occurred in this case.

This case clearly illustrates that greater emphasis should be placed on surgery of mastoids and that these should be explored early despite the lack of either clinical or x-ray evidence of disease when other foci have been eliminated. The futility of the sulfonamide compounds and large doses of type-specific serum to overcome a persistent focus of infection is demonstrated.

No particular reaction in the blood was noted because of the relatively large doses of sulfapyridine and sulfathiazole. However, we noted in this case an antipyretic effect, *per se*, of sulfapyridine. This has been reported by many.³ After the first series of sulfapyridine (see Chart 1) the temperature came down by rapid lysis, but after the second and third series of sulfapyridine there was a drop in temperature by crisis. The sulfathiazole had no such effect on the temperature.

Judging from the facts and subsequent course in this case, it appears definitely to be clear that surgery of the mastoids must be resorted to early in similar cases even before clinical evidence of mastoiditis is present. This is further confirmed by the lack of benefit from any form of therapy. It is our opinion that closer teamwork by a limited group specializing in the treatment of this disease will offer greater success.

Summary

1 A case of *Pneumococcus* type XVIII meningitis is presented.

2 The advisability of early attack of secondary foci whenever suspected in cases of pneumococcal meningitis is discussed.

3 A fatal result was obtained in spite of the use of large amounts of specific serum and sulfapyridine.

We wish to express our appreciation for the advice and many valuable suggestions given to us by Dr. Josephine B. Neal in the treatment of this case.

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Pain is the fire alarm of danger, but stopping the alarm does not put out the fire.

—Pennsylvania M. J.

Our idea of sweet revenge is a chiropractor giving an adjustment to the dentist who pulled the wrong tooth for him.

—Tile and Till

apy (6 Gm. daily) the patient expired on the forty-second hospital day

Laboratory Data.—Frequent examinations of the urine were normal. No Bence-Jones protein was found. Stools were negative for occult blood, ova, and parasites, and culture revealed a normal flora. The blood urea nitrogen, uric acid, sugar, chlorides, calcium, and phosphorus were all within the normal limits. Serum cholesterol was 85 mg per hundred cubic centimeters with esters of 45 mg per hundred cubic centimeters. The serum proteins totaled 6.1 Gm per hundred cubic centimeters, but the A/G ratio was inverted, the albumin fraction being 2.9 Gm and the globulin, 3.2 Gm. There was 20 per cent retention of bromsulfalein one hour after the administration of 5 mg per kilogram of body weight. Serologic examination for syphilis was negative. Westergren sedimentation rates varied between 13 and 20 mm per hour. X-ray studies of the long bones, pelvis, and skull were negative. The electrocardiogram and basal metabolic rate were within normal limits. Sputum cultures showed a predominance of *Staphylococcus aureus*, and on one occasion yeast cells were present. Agglutination tests for the enteric fevers, brucellosis, tularemia, and typhus were all negative. Repeated blood cultures showed no growth. Intradermal tests with tuberculin and brucellergin were negative. A Weltmann test showed a band of 5. Hanger's cephalin test was 4 plus. Erythrocyte fragility and heterophilic antibody tests were normal.

Discussion

DR EDWARD F. HARTUNG. In a case of this sort one may select the outstanding finding and then classify the possibilities explaining this particular finding. The leukopenia was an outstanding finding in this patient. There are many causes of leukopenia, but I will mention only a few. Most of them have been ruled out by the thorough laboratory study of this case—typhoid fever, for example. Another possibility is undulant fever, which might give arthralgia or even arthritis. The points against this diagnosis are the negative agglutination tests and the low mortality rate of undulant fever, so I think it would be difficult to defend this as a diagnosis. The virus diseases also cause a leukopenia, but their course is usually of short duration. Toxic drug reactions may result in leukopenia. The medication prescribed for the arthritis in this case may have been the etiologic factor. Pyrimidone, the sulfonamide group, arsenic and

gold medicaments commonly used in the treatment of arthritis may all cause bone marrow changes. An interesting phase of the leukopenia in this case was the drop in the absolute number of both neutrophils and lymphocytes. This feature does not fit in with a diagnosis of agranulocytic angina. Felty's syndrome—consisting of arthritis, splenomegaly, and leukopenia—is another possibility.

Of the above-mentioned causes of leukopenia, there are three that should be considered in the differential diagnosis of this case. These are rheumatoid arthritis followed by (1) toxic hepatitis due to drugs, (2) Felty's syndrome, and (3) undulant fever.

In my opinion the patient had rheumatoid arthritis. She was seen in the dispensary, and it was the impression then that there were some objective signs of arthritis in the joints. The fever, hyperglobulinemia, hypocholesterolemia, and a Weltmann band of 5 favor the presence of an inflammatory process. The relative increase of plasma cells in the bone marrow and the presence of toxic granulation in the neutrophils and the leukopenia indicate a toxic effect on the bone marrow. The patient was treated by her local physician for arthritis, and he may have used arsenic, gold, or one of the sulfonamide group which would result in bone marrow irritation with or without toxic hepatitis.

The abnormal retention of bromsulfalein and the 4 plus Hanger's test suggest liver damage. In arthritic patients who have liver damage with an altered A/G ratio, the sedimentation rate is usually normal. When the sedimentation rate in patients on gold therapy decreases suddenly, we think of a toxic hepatitis.

The absence of splenomegaly makes the diagnosis of Felty's syndrome unlikely. Undulant fever is ruled out by the negative agglutination and intradermal tests.

Dr Hartung's Diagnoses

Rheumatoid arthritis with hepatitis and leukopenia of toxic origin.

Bronchopneumonia, terminal.

DR GREENE. Is there any other discussion before the pathologist gives his report? The impaired bromsulfalein test, the positive Hanger's test, and the hypocholesterolemia indicate liver damage despite the normal icteric index.

DR HERBERT K. ENSWORTH. This patient's chest findings were always more marked on physical examination than the x-ray showed.

Diagnosis

CLINICOPATHOLOGIC CONFERENCES

DEPARTMENTS OF MEDICINE AND PATHOLOGY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, COLUMBIA UNIVERSITY

Date May 20, 1941

Presiding Dr Carl H Greene

History

DR ROBERT McGRATH A 42-year-old single woman was admitted to the hospital on December 31, 1940, and died on February 10, 1941. Her family history and past history were negative with the exception of a subtotal thyroidectomy for hyperthyroidism in 1932. The present illness began two and one-half years prior to admission when she noticed stiffness in the joints of the hands and feet. She was treated by her family physician for one month with complete relief. One year later stiffness involving the feet, knees, hips, shoulders, elbows, and hands recurred. There was no swelling or redness of any of these joints. Despite the administration of thyroid extract and a series of injections, some of the finger joints became swollen during this period. At the end of three months she had again completely recovered and remained well for about one year. Three months before admission there was a recurrence of the same symptoms accompanied by moderate pain. She had lost 16 pounds during this period. There was no history of fever.

On admission to the hospital her temperature was 101 F (38.5 C), pulse, 80 per minute, and respirations, 20 per minute. Physical examination showed a well-developed, although somewhat thin woman not appearing acutely ill. The skin was of normal color and texture. Pyorrhea was present, and the tonsils looked chronically infected. The lungs were clear. A soft systolic murmur heard at the apex was not transmitted. Regular sinus rhythm was present, and the blood pressure was 120/80 mm Hg. Active movement of the involved joints was painful, but careful passive movements caused little or no discomfort. Questionable swelling of the wrist and interphalangeal joints was noted. The remaining joints were normal in appearance. An orthopaedic consultant reported limited internal and external rotation of both shoulders. Vascular, neurologic, and gynecologic examinations were normal.

Course in the Hospital—On the day of admission, 10 mg of aurothioglucose was given intramuscularly. On the same day the leukocyte count was 3,600 per cubic millimeter with 87 per cent neutrophils. The red cells numbered 3,850,000 per cubic millimeter, and there were 13 Gm of hemoglobin. A letter subsequently received from her physician stated that two months prior to admission her leukocytes totaled 3,800 per cubic millimeter and the basal metabolic rate was -13. Thyroid extract had been prescribed.

A week after admission the leukocyte count dropped to 1,850 per cubic millimeter with 72 per cent neutrophils. Ten cubic centimeters of pentonucleotide was given intramuscularly, and a severe febrile reaction followed. Daily leukocyte counts ranged between 900 and 2,450 per cubic millimeter, of which 75 per cent were neutrophils and 25 per cent were lymphocytes. Some of the neutrophils showed toxic granulations. Sixteen days after admission a sternal bone marrow biopsy showed a slight increase in the plasma cells. A lymph gland was removed from the left axilla, and normal histologic structure was found on microscopic examination. On the following day, impaired resonance, bronchovesicular breathing, and crepitant rales were noted at the right base associated with herpes labialis. An x-ray of the chest was suggestive of a pneumonic infiltration in the right lower lobe.

From this time on the patient had a febrile course (102 and 103 F) associated with changing pulmonary signs at both bases. Blood pressure readings were consistently low during this period, averaging 88/50 mm Hg. Treatment was symptomatic, consisting of vitamin B complex, yellow bone marrow, liver extract, and a series of blood transfusions. One month after admission an x-ray of the chest showed a possible bronchiectatic lesion in the central portion of the right lower lobe. The patient went rapidly downhill with signs of consolidation at both bases. No pneumococci or tubercle bacilli were found in the sputum. The leukocyte count increased to 5,600 with 90 per cent neutrophils. Despite sulfadiazine ther-

Medical News

County News

Albany County

Dr Edward D Churchill of the Harvard Medical School addressed the county society on October 22 in the Albany College of Pharmacy. His subject was "Wounds of the Chest." The woman's auxiliary met the same night in the auditorium of the Nurses' Home, Albany Hospital. Dr John Swan, of Rochester, was the speaker.

Bronx County

The regular meeting of the society was held at Burnside Manor, 85 West Burnside Avenue, on October 22. Following the executive session, Dr Abner Stern, president, delivered the inaugural address. The research director of the State Health Preparedness Commission, Dr John J Bourke, spoke on "Health Defense and Emergency Medical Service and Their Relation to the General Defense Program in New York State."

The first fall dinner meeting of the Doctors' Club was held at the Park Royal Hotel, West 73rd Street, on November 9, at 7 30 p m.

The Doctors' Club was organized for the cultural and social activities of Bronx doctors. Those interested in joining are requested to communicate with the president, Dr H Silver, or the secretary, Dr H P Posner.

One of a series of Obstetrical Conferences, conducted by the Maternal Welfare Committee and sponsored by the society, will be held on November 19 at 4 00 p m. at the new quarters—District Health Center Auditorium, 1826 Arthur Avenue. The *Bulletin* announces that doctors wanting reminder cards of the monthly meetings should send their names to the county society offices and they will be put on a special mailing list—a good way to boost attendance.

Canandaigua County

Dr A. W. Armstrong spoke on "Home and Health" before the county society on October 9. Dr Frederick C McClellan was host at Wenna Kenna, with dinner served to 21, Dr J F Maltman presided.

Dr Hubbard K. Meyers, of Buffalo, former president, was among those present. Guests were Dr Hans Hansen and Dr Parker G Borden, Veterans' Hospital, Dr O J Mason, Farmington, Dr John Marsh, Palmyra, Dr Carl Smith, Victor, Dr Ludvig Mayer, Manchester, and Dr Frederick C Robbins, Brigham Hall.

Dr Margaret T Ross, Brigham Hall, was hostess on November 13.

Dutchess County

At the county society meeting on October 15 a special committee was appointed to consider the question of whether or not the children's preventorium at Bowne Memorial Hospital will be continued.

Dr A. L. Peckham is chairman of the committee and other members are Dr John I

Cotter, Dr E A. Stoller, Dr Samuel E Appel, and Dr A. A. Rosenberg.

The report of the committee is scheduled to be given at the society's meeting in November.

A moving picture on "The Vitamin B Complex" was shown, depicting symptoms of deficiency of the vitamin and the effects of treatment.

Dr James T Harrington, president, presided.

Erne County

At the Fall Clinical Day, held November 13, the guest speakers were Dr Chas Gordon Heyd, of New York City, former Buffalonian and former president of the American Medical Association, Dr J C Meakins, of Montreal, Dr Logan Clendenning, of Kansas City, and Dr Jennings C Lutzenberg, of Minneapolis.

The evening was devoted to honoring the Buffalo physicians with fifty years or more of practice, who are Herbert Beals, A. L. Benedict, Alice Bennett, Albert J Colton, J Henry Dowd, Sidney A. Dunham, Thomas F Dwyer, Edgar A. Forsythe, Lawrence George Hanley, Herman E Hayd, George A. Hummelsbach, Jeannette Hummelsbach, F Whitehall Hinkel, William Hoddick, John D Howland, Allen A. Jones, Benjamin G Long, Eli H. Long, William H Mansperger, Salo Matheus, Henry John Mulford, Albert W Persons, Irving W Potter, Frank B Rasbach, Anna Reinstein, Charles J Reynolds, Charles A. Schladermundt, James C Spiegel, Chester T Stewart, Emil Tobie, Frank B Voght, James F Whitwell, James P Wilson, and Harry A. Wood.

Doctors in other communities are William Henry Norrish, Kenmore, Frank Sweetland, Angola, Albert Erb, Clarence Center, E W Buffum, East Aurora, Mark N Brooks and Thomas B Fowler, Springville, John J Finerty, Derby, and Edgar J Foote, Williamsville.

Franklin County

At the county society's annual meeting held in Malone on October 15 the following officers were elected. Dr Frank F Finney, of Malone, president, Dr Francis Trudeau, of Saranac Lake, vice-president, Dr Daisy Van Dyke, of Malone, secretary-treasurer.

The meeting was held in the Nurses' Home at the Alice Hyde Hospital in the afternoon and was featured by a talk by Dr William H. Wehr of the State Institute for the Study of Malignant Diseases of Buffalo. He told of the newer concepts and developments in operative methods and treatment of cancer.

A dinner at the Hotel Franklin concluded the meeting.

Greene County

At the annual meeting of the county society held in October the following officers were elected.

Dr William V Wax, of Catskill, president, Dr Elsha B Van Deusen, vice-president, Dr Wm. M. Rapp, secretary, Dr Mahlon H

DR MAURICE N. RICHTER I should like to ask whether or not skin lesions were ever noted.

DR McGRATH There was no history of skin eruptions, and none were noted on physical examination.

Pathology

DR RICHTER The gross lesions found at autopsy were not so striking as the clinical features would lead one to expect. In the lungs there were areas of lobular pneumonia and edema. There was thickening of the pleurae, and fluid was present in each pleural cavity. The liver and kidneys were congested. In the heart a small area of thickening was found in the ventricular endocardium beneath the mitral valve. The other organs showed no gross features of interest.

In contrast to the gross findings, the microscopic changes were of great interest, the most important ones being in the heart. Here, there were areas of cellular infiltration in the myocardium between the muscle bundles. The cells appeared to be lymphocytes and mononuclear cells. These cells and cell collections were not the same as in rheumatic fever and were not necessarily related to blood vessels. They formed linear cell arrangements in the interstitial tissues of the myocardium.

In addition to the presence of the cells, there was a change in the appearance of the collagenous fibers. They seemed coarser than usual and slightly more basophilic. With azure-eosin they became differentiated more slowly than normal collagen fibers and were, therefore, more clearly demonstrated.

The only other vascular lesion found was in one of the periadrenal arteries. A small degenerative lesion with cellular infiltration, not unlike the lesion of diffuse vascular diseases such as periarteritis or scleroderma, was noted in one side of the vessel. This lesion was too small to classify accurately.

In the spleen there was a peculiar arrangement of the connective tissue around the arterioles, forming concentric circles of collagen fibers.

Several sections of voluntary muscle were examined, in only one of which a lesion was found. This consisted of a cellular collection in the interstitial tissue too small to study advantageously.

The thyroid gland showed a moderate degree of diffuse hyperplasia with areas of involution. This was compared to sections of the gland removed at operation nine years before and found to be similar.

The lesions described are not comparable to any that I have seen before. Rheumatic fever, interstitial myocarditis of the usual types and periarteritis nodosa can be ruled out. While the case was under discussion in the laboratory, Dr. Arthur C. Allen remarked that the cardiac and splenic lesions were similar to those in cases of lupus erythematosus which he had seen in Dr. Klemperer's laboratory. Accordingly, sections were sent to Dr. Klemperer, who confirmed the diagnosis and permitted us to study some of his material. Dr. Klemperer feels that alteration of the collagenous tissues is the principal underlying change in cases of this type.

The lesions in the heart and spleen are described by Drs. Klemperer, Pollack, and Baehr in a recent paper.

The splenic lesion in particular interested us, since Dr. Homer Kesten recently showed us similar lesions in a spleen removed surgically for purpura hemorrhagica. In his case the patient had had a skin lesion diagnosed as lupus erythematosus thirteen years before.

We have, therefore, made a diagnosis of lupus erythematosus. In this connection it is worth calling attention to the fact that symptoms referable to the joints and reduction in the white cell count, as seen in this case, have been noted in lupus erythematosus before.

Pathologic Diagnoses

Interstitial myocarditis, lupus erythematosus type

Acute arteritis (periadrenal), lupus erythematosus type

Periarterial fibrosis of spleen

Lobular pneumonia, bilateral

Edema of lungs

Hydrothorax, bilateral

Atelectasis, right and left lower lobes

Chronic passive congestion of liver

Hyperplasia of thyroid gland

Editorial Committee

J. SCOTT BUTTERWORTH, M.D.

MAURICE R. CHASSIN, M.D.

HERMAN O. MOSENTHAL, M.D., *Chairman*

Pollack A. D. Arch. Path. 29: 859 (1940)
 Gross L. The Heart in Atypical Verrucous Endocarditis (Libman-Sachs). Libman Anniversary Volumes, 1932, vol. 2, p. 527.
 Klemperer P., Pollack A. D. and Baehr G. Arch. Path. 56: 631 (Oct.) 1941.

Montgomery County

A regular meeting of the county society was held on October 14 in Amsterdam at the Elks Club with the president, Dr Julius Schiller, presiding. New members introduced were Dr Leonard Bolognino and his wife, Dr Christine Heffernan, and Dr Daniel P McMahon, district health officer.

The scientific paper was given by Dr J A. Dickson, the subject being "Surgical Indications of Treatment of Peptic Ulcer." The paper was discussed by Dr Welch, professor of surgery in Albany Medical College.

There followed a general discussion participated in by members of the society, after which a buffet luncheon was enjoyed.

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Nassau County

Dr Louis H. Bauer has been appointed head of public health and welfare, with Dr A. L. Higgins, deputy head, of the Nassau County Defense Council. Dr Earle Brown, head of the county health department is the operating head of the health division. A program embracing practically every war emergency health problem has been worked out by the Council with the aid of the County Health Department, the Nassau County Medical Society, and local voluntary organizations.

The plan as set up by the Council will include surveying emergency hospital facilities, ambulance service, nursing service, first aid, sanitation, immunization, the prevention of infection and contagion, and the listing of available medical supplies. Under the supervision of the medical preparedness committee of the county society, a county-wide plan has been worked out under which every physician in the county will be assigned to emergency duty.

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One of America's greatest needs, according to Dr Van Etten, is more average practitioners to take care of average patients and fewer medical specialists. He said that most teachers in medical schools are themselves specialists and actually inspire their students to follow their example, with the result that many interns have decided on specialized fields by the time they

begin their internships and seem uninterested in general clinical work. Dr Van Etten advocated the postponement of specialty teaching until it is demanded by the graduate students. He also said that he would like to see many of our specialists re-educated in general medicine in order to improve their appreciation of the importance of coordinated study of the whole patient.

Justice Shientag said that while he did not favor any plan of compulsory health insurance, he believed that the doctors might have to face the likelihood of such a system unless they adequately met the problem of medical costs in serious illness affecting low-income patients.

Dr John C. A. Gerster, for fifteen years chairman of the New York City Cancer Committee, received a testimonial from the American Society for the Control of Cancer at the committee's fifteenth annual dinner held at the Advertising Club in New York City last month. The dinner preceded the opening of the committee's campaign for \$75,000 for its work in 1942. In an address by Dr Frank E. Adair, chairman of the national society's executive committee, he said that the proof of the effectiveness of any such campaign can only be ascertained by exact scientific studies of the facts and that in the case of the New York City Cancer Committee striking demonstration of effectiveness is shown by the fact that in 1920 the operable cases of breast cancer averaged eleven months and seven days between the patient's first noticing a lump and her admission to the hospital for treatment. In 1940 the same type of case averaged only four months and seven days, a reduction of 62 per cent in lost time.

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The annual concert will be given at Town Hall, New York City, on May 8, 1942.

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Since July 1, 1940, ward patients of University Hospital, upon being taken to their homes after treatment for medical—not surgical—illnesses, have been given needed treatment by physicians under Dr Jensen's direction.

The purpose of this activity has been to determine whether this practice is the best method of aiding the medical indigent, it has been sought

Atkinson, treasurer Dr Percy G Waller was named chairman of the legislative committee, Dr T Earl McQuade, chairman of public relations, Dr Kenneth F Bott, Greenville, delegate to the State Society, and Dr William A Petry, alternate

Herkimer County

Dr Byron G Shults, of Herkimer, was nominated for president of the county society at the meeting held October 14 in the Mohawk Valley Country Club at Herkimer. He has been first vice-president. Other officers nominated were first vice-president, Dr Nicholas D Lill, Dolgeville, second vice-president, Dr Dominick Aloisio, Herkimer, third vice-president, Dr F M Neuendorf, Mohawk, treasurer, Dr A. C Fagan, Herkimer, secretary, Dr Fred C Savin, Little Falls, librarian, Dr George F Eveleth, Little Falls, delegate to State Society meeting in April, Dr George A. Burgin, Little Falls.

Dr Sabin was nominated for his eighth term as secretary and Dr Fagan has completed seven terms as treasurer.

The nominations were proposed by a committee headed by Dr T B O'Neil, of Ilion. Election will take place at the December meeting, but nomination is tantamount to election.

Dr Shults, as first vice-president, presided over this meeting, in the absence of Dr H. Dan Vickers, of Little Falls, president, who is honeymooning in South America.

The medical men discussed the question of fees for county work and the method of payment, but they took no action.

Kings County

The first series of "Lectures to the Laity," sponsored by the Medical Society of the County of Kings and the Academy of Medicine of Brooklyn, in cooperation with the Brooklyn Institute of Arts and Sciences, will be given this winter in the Music Hall of the Brooklyn Academy of Music at 8 15 P.M.

The series includes "Devils, Drugs, and Doctors," Mr Howard W Haggard, professor, Department of Applied Physiology, Yale University, Tuesday, October 28, 1941. "Relation of Medicine to Crime Detection," Dr Thomas A. Gonzales, chief medical examiner, City of New York, Tuesday, November 25, 1941. "What and Why Is Your Mind?" Dr Foster Kennedy, professor of neurology, Cornell University Medical College, Tuesday, January 27, 1942. "The Man Within the Patient," Dr George Draper, associate professor of clinical medicine, Columbia University Medical College, Tuesday, February 24, 1942. "Food, Faith and Civilization," Dr Walter C Alvarez, senior consultant in medicine, Mayo Clinic, Rochester, Minnesota, Tuesday, March 24, 1942.

The regular meeting of the Pediatric Section of the county society will be held on Monday, November 24, at 8 30 P.M. at the County Building, 1313 Bedford Avenue. A paper, "The Foot Problem in Children," will be given by Dr Dudley J Morton, of New York City. Dr Herbert C Fett, of Brooklyn, will discuss the paper.

The profession is cordially invited to this meeting.

The first fall meeting of the county society was held on October 21. The speaker for the scientific session was Dr William P Murphy of Boston. He discussed two subjects, "Chronic Leukemia" and "Esophageal Hiatus Hernia." The latter subject is an unpublished paper of particular interest to hematologists, gastroenterologists, and general practitioners. Dr Murphy is consultant hematologist at the Melrose Hospital, senior associate in medicine at the Peter Bent Brigham Hospital, and associate in medicine at Harvard University.

Madison County

Dr Eugene W Carpenter, Oneida, was named president of the county society at the 135th annual meeting on October 16 in Oneida. He succeeds Dr Howard Beach, Oneida, who presided at the two sessions and dinner of the medicos.

Dr Lee S Preston, Oneida, and Dr Paul Ferrara, Canastota, were renamed secretary and treasurer, respectively. Dr Jackson W Thro, of Hamilton, was selected as vice-president.

Delegates to the annual meeting of the New York State Medical Society are Dr Carpenter and Dr Beach. Dr Otto Pfaff, dean of the Oneida Medical Society, was reappointed to the board of censors. Other members are Dr Robert L. Crockett, Oneida, and Dr O H Langworthy, Hamilton.

Speaking on the medical preparedness in national defense, Dr John J Bourke, research director of the New York State Department of Health, outlined the emergency medical service for the state.

Dr E C Hughes, Syracuse, presented a paper at the evening session on "Relationship of the Thyroid and Adrenal Glands to Toxemias of Pregnancy." Colored slides on "Skin Lesions" were shown and explained by Dr Leon Griggs, Syracuse. Dr Beach gave a paper on "Surgical Gallbladder Cases."

Monroe County

The regular meeting of the county society was held on October 21 at the Academy of Medicine in Rochester.

Dr James K Quigley was nominated to succeed Dr C Stewart Nash as president of the Monroe County Medical Society when it holds its annual meeting in November.

Other men nominated were Dr G Kirby Collier, vice-president, Dr William A MacVay, for re-election as secretary, and Dr John L Norris, treasurer.

Nominations preceded a discussion on food supplies and nutritions in France led by Dr John B Youmans of Vanderbilt University School of Medicine and member of the Rockefeller Health Service Commission to France from December, 1940, to June, 1941.

"To some extent, the French nutritional laws may be of help to this country, if future developments warrant," Dr Youmans declared. He said France was still receiving food from its colonies when he left, but there were too many uncertainties in its development as a conquered country to tell what the future might hold.

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to determine whether both the community and the patient benefit from this procedure

The aid provided by the foundation provides for poor people the after-hospital care that those able to pay for medical service would normally receive at their own expense. The object is to improve the health of the patient and prevent the need of further hospitalization.

The objective of the experiment, according to Dr Weiskotten, is to provide continuity of medical care to save hospitalization, both by returning patients to their homes earlier because of available medical supervision and, by such continued medical supervision, to prevent recurrence of disease and return to the hospital.

The program is being carried out with the full approval of the county society, the Syracuse Academy of Medicine, and the Syracuse and Onondaga County Health departments.

Syracuse psychiatrists will be present at the free dispensary when Selective Service enrollees from Onondaga County are given medical examinations at the city clinic held for military examination. This was decided at a recent meeting of draft board physicians held at the Syracuse State Psychopathic Hospital, with Dr Noble R. Chambers presiding. The meeting was arranged by the Syracuse mental hygiene committee in cooperation with the defense committee of the county society.

Dr Harry A. Steckel, superintendent of the Psychopathic Hospital, told of three men inducted into the army who broke down within three months because of psychopathic conditions previously undetected. Dr Eugene Davidoff said that emotional traits constituting a psychopathic personality made some men unfit for military service. Dr H. B. Lang, of Albany, Col. H. Gaus, Dr Jerome Alderman, Dr Eugene N. Boudreau, Dr F. Ross Haviland, Dr A. B. Siewers, and Dr Edward S. Van Duyn were other speakers.

Ontario County

At the annual meeting of the county society held at Canandaigua on October 14 the following members were elected: president, Dr M. Edgerton Deuel, Geneva, president-elect, Dr Adrian S. Taylor, Clifton Springs, secretary and treasurer, Dr Daniel A. Eiseline, Shortsville, censors, Dr M. W. Gasper, Gorham, Dr P. M. Standish, Canandaigua, and Dr A. M. Stewart, Naples, delegate, Dr Homer J. Knickerbocker, Geneva, and alternate, Dr Melville D. Dickinson, Geneva.

Dr Eiseline was elected for his forty-fifth consecutive term as secretary-treasurer of the county society.

Rensselaer County

At the county society's first meeting of the fall, held at the Hendrick Hudson Hotel in Troy on October 14, Dr Joseph S. Lawrence, of Albany, executive officer of the Medical Society of the State of New York, said that public health from a government standpoint is here to stay but planned and executed by physicians. He said the government desires a widespread health program but is giving individual physicians the opportunity through the county societies to work out the actual setup.

St. Lawrence County

The county society held a meeting on October 14 in Potsdam and elected Dr W. J. Baldwin, of Potsdam, as president to succeed Dr U. R. Plante. Other officers chosen were Dr F. E. Clark, Ogdensburg, vice-president, Dr Robert Reynolds and Dr J. McNulty, both of Potsdam, re-elected secretary and treasurer, and Dr M. J. Stearns, Ogdensburg, Dr Frederick Mason, Massena, and Dr Robert Reynolds, censors.

Schenectady County

Dr William H. Meyer, of Poughkeepsie, director of the Dutchess County Maternal Health Center, spoke to members of the county society on October 16 at the Ellis Hospital in Schenectady in commemoration of the twenty-fifth anniversary of the founding of the first birth control clinic.

Dr Meyer's topic was "Medical and Surgical Aspects of Birth Control." He said he was glad to have an opportunity to endorse the Schenectady Maternal Health Center and the work of the Schenectady Maternal Health League. He spoke of the work of Mrs. Margaret Sanger, who founded the first clinic, and said he was proud to be able to take part in the anniversary celebration. According to Dr Meyer, the local center is playing an important part in community life.

Dr Norman D. Kathan, medical director of the Schenectady Center, led a discussion that followed Dr Meyer's talk.

At the Ellis Hospital in Schenectady on November 13 was held a "teaching day" on clinical medicine and surgery and maternal and child welfare. Following the morning session, which was devoted to surgery, medicine, and the specialties, there was a luncheon in the Nurses' Cafeteria. Dr Charles E. Wiedenman, president of the county society, opened the afternoon session, which dealt with maternal and child welfare. Dr William M. Mallis, regional chairman in obstetrics, was chairman of the meeting.

Schoharie County

Dr Roy G. S. Dougall, of Cobleskill, was elected president of the county society at the annual meeting held in Cobleskill on October 16. Other officers are vice-president, Dr Leroy Becker, Cobleskill, secretary, Dr Donald Lyon, Middleburgh, treasurer, Dr Duncan L. Best, Middleburgh, delegate to the State Society meeting, Dr David W. Beard, Cobleskill, censor, Dr Joseph Duell, Jefferson.

Scientific papers were given by Dr John Hessel, of Albany, Dr Joseph Cornell of Schenectady, and Dr John Lyon, of Albany.

Steuben County

The county society held a meeting following a dinner at the Hotel Wagner in Bath on October 16. The meeting was under the direction of Dr M. J. MacFarland, Hornell, with Dr George Peterson of Post-Graduate Hospital, New York City, as the speaker. Dr Peterson, noted brain surgeon, discussed "Head Injuries." More than 35 attended the meeting.

Suffolk County

The Suffolk County Cancer Committee, assisted by the county society and the County Department of Health, recently mailed its annual fall appeal to 25,000 families in Suffolk County.

Dr Charles C Murphy, of Amityville, chairman, said that as a result of the educational work of the Suffolk County Cancer Committee more cancer patients are now seeking medical advice earlier than ever before.

The work of the committee extends beyond education. X-ray and radium treatments are supplied to cancer patients who cannot afford treatments but who are not on county relief. Transportation for cancer patients to and from the clinics is provided when needed.

Sullivan County

On November 19 at the Lenape Hotel in Liberty, the subject for the lecture, which is one of a series on pediatrics, will be "The New York State Program for the Rehabilitation of Handicapped Children" by Dr Francis Carr.

On November 26 at the home of Dr Harry Golemb, 111 Champlin Avenue, Liberty, the subject will be "Infectious Diseases of Childhood." The speaker, Dr A. C. Silverman, is professor of clinical pediatrics, Syracuse University College of Medicine.

Washington County

At the annual meeting of the county society held in the Court House in Hudson Falls on October 14, Dr Elias W Young, of Cambridge, was elected president to succeed Dr William C Cuthbert, of Hudson Falls.

Dr Arthur E Falkenbury, of Whitehall, was named vice-president, Dr Denver M Vickers, of Cambridge, secretary, and Dr Charles A. Prescott, of Hudson Falls, treasurer.

On the board of censors are Dr Cuthbert, of Hudson Falls, Dr R. E. Borrowman, of Fort Edward, Dr W S Bennett, of Granville, and Dr Charles H Holmes, of Cambridge. Dr Kennedy Creavy, of Cambridge, was named chairman of the committee on legislation. Dr Michael A. Rogers, of Greenwich, was named chairman of the committee on public relations and medical economics. Dr Vickers, of Cambridge, was named delegate to the State Society.

Dr Cuthbert spoke on practical application of short-wave diathermy.

Dr J G Fred Hiss, of Syracuse, professor of clinical medicine, Syracuse University College of Medicine, addressed the physicians on "Rheumatic Fever and Rheumatic Heart Disease."

Westchester County

"The Art of the Practice of Medicine" was the title of an address given before the county society on October 21 by Dr Walter L Niles, professor of medicine at Cornell University Medical School. Dr Niles' talk was heard by more than 200 physicians attending the meeting at New York Hospital, Westchester Division.

Dr Frederick E Elliott, of Brooklyn, secretary of the Medical Expense Fund of New York, outlined the medical expense insurance plan which is now offered by his organization throughout the entire metropolitan area. The Westchester County Medical Society has endorsed this organization's plan of service.

Wyoming County

The fiftieth anniversary of the practice of medicine by Dr Mary T. Greene, of Castile, was celebrated as a part of the program at the monthly meeting of the county society which was held at the Community Hospital on October 15.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
William P Brady	32	Georgetown	October 15	Buffalo
Arthur B Breeze	83	P & S N Y	October 13	Syracuse
Andrew C Callahan	60	Ohio Med	October 11	Buffalo
Karl Connell	63	P & S N Y	October 18	Branch
Thomas L Craig	76	Maryland	October 17	Davenport
Herman E Doege	63	Baltimore	October 24	New Rochelle
Frank J Donigan	43	L I C Hospital	October 19	Brooklyn
John W Eustace	36	Buffalo	October 11	Buffalo
Lamont H Fisher	64	Univ & Bell	October 10	Brooklyn
James P Fiske	75	P & S N Y	October 24	Manhattan
Curt B Hardt	33	Frankfurt	October 16	Woodmere
George H Harkin	46	McGill	July 28	Rochester
Robert A Joyce	90	Bell	October 16	Monroe
Robert R King	33	Buffalo	October 15	Lancaster
Ray W Moe	61	Baltimore	October 27	Peekskill
Thomas F Rearden	70	Vermont	September 5	Mount Vernon
Louis D Retz	44	Syracuse	October 23	Elmhurst
Charles H. Sangster	79	Buffalo	October 20	Buffalo
Kenneth G Theis	40	N Y Hom	October 16	Nyack
Joseph S Wheelwright	65	Cornell	October 9	Manhattan

TUBERCULOSIS ABSTRACTS

A Review for Physicians

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

Vol. XIV

September, 1941

No 9

TEN years ago no more than a dozen school health administrators were actively seeking out tuberculosis among the students in colleges and universities, despite the acknowledged prevalence of the tubercle bacillus for those of this age group. Today, 248 institutions of higher learning have some form of program for the finding of tuberculosis on the campus. The Tenth Annual Report of the Tuberculosis Committee of the American Student Health Association is both a record of progress and a reminder of what is still to be done.

FINDING TUBERCULOSIS AMONG COLLEGE STUDENTS

The colleges and universities of the United States and Canada are becoming increasingly "unfair to tuberculosis!" They are showing that they recognize an obligation to safeguard and improve campus health and the present report of the Tuberculosis Committee relates action such as no previous report has recorded.

For the academic year of 1939 to 1940, 248 colleges had some form of tuberculosis control, an increase of about 50 per cent over the preceding school year. Necessarily, where a movement is gaining new adherents annually, the character of individual programs varies greatly. There are still 629 colleges with no program but about 30 of these hope to initiate one this year. Although 402 schools neglected to return the questionnaire sent by the Committee, there were 193 additional replies this year. In spite of this, six states have failed to report a single collegiate tuberculosis program.

The duties of the Committee fall into three divisions: first, the presentation to interested schools of the most approved outline of workable institutional tuberculosis case-finding, second, the active encouragement of interest in case-finding, and third, the collection, analysis, and publication of statistical data secured from colleges taking part in the national survey.

Since the statistical data collected by the Com-

mittee are submitted by many people and accumulated under widely differing conditions, some are open to criticism, so the report figures are indicative of trends rather than mathematical pronouncements.

The procedure is to mail questionnaires early in May to cooperating schools, and a follow-up is sent in October when necessary. Nothing is asked which would require the keeping of complex records. The form requests the name and enrollment of the college, number of positive reactors to tuberculin, tuberculosis cases discovered and their disposition, and the number of students tuberculin tested and x-rayed elsewhere than on the campus. Similar data are requested on nonstudent tuberculosis. Returns are divided by sex. The reverse side contains questions as to procedure which, in general, can be answered by a check mark. The recommended techniques are plainly underlined. A duplicate copy of the questionnaire is sent for the use of the health officer of the institution.

This year questionnaires were sent to 20 colleges and universities in Canada. There is no Canadian student health association and so frequent have been the requests for information that it was decided to circularize these colleges. Several fine programs are already under way in Canada.

More colleges have discovered this year that a relatively simple system suffices to keep track of tuberculin testing, negative and positive reactors, x-ray results, etc. It is essential that those conducting health work know, at any time, the exact status of their effort and the result.

The Committee agreed that tuberculin testing is a prime prerequisite to a tuberculosis case-finding plan and believes that only thus can all infected students be identified. The Committee recommends the annual retesting of all negative reactors since the initial infection occurring in a young adult may produce an unpredictable clinical sequence of events. Where hazards of infection are heightened, as in nursing, medicine, dentistry, practice teaching, etc., more frequent testing is indicated.

The Committee recommends that only reliable tuberculin be used and that a positive reaction to the tuberculin test be succeeded by a good chest film. Where possible, the fluoroscope should be used as a supplement to the film.

In Table 1 data from 166 colleges are compiled because their figures seemed satisfactory in quality. The continued shrinkage in positive reactors seems to indicate a national decline in childhood infection.

TABLE 1—TUBERCULIN TESTING OF AMERICAN COLLEGE STUDENTS

Year	Total No Tested	Percentage Positive
1932-1933	14 318	35 0
1933-1934	25 184	30 3
1934-1935	26 881	29 4
1935-1936	31 601	30 0
1936-1937	56 224	27 3
1937-1938	64 232	25 8
1938-1939	82 774	25 5
1939-1940*	123 389	25 4

* Reliable returns only

TABLE 2—CASES OF PULMONARY TUBERCULOSIS DIAGNOSED AMONG COLLEGE STUDENTS 1939 TO 1940

	A*	B†
Clinically active cases diagnosed‡	292	21
Apparently arrested cases diagnosed‡	345	14
Withdrawals due to tuberculosis	273	25
Old cases back in school	338	23
Institutions reporting	248	227
Approximate total enrollment	490 000	200 000

* In institutions with some tuberculosis control program.

† In institutions with no tuberculosis control program.

‡ Generally recognized criteria of activity were specified.

Using only the active cases for comparison, it is seen that such cases were turned up with much greater frequency in Group A. It is fair to presume that these cases were found early, often preclinically, instead of late and with marked signs and symptoms, which proves again the importance of early diagnosis.

Educators are sensing the urgency that animates an enlightened citizenry intent on eliminating every preventable disease. The ultimate aim

of the Committee is to report that in answer to their questionnaire, every American college has replied.

"We have a modern tuberculosis control program, and tuberculosis will not catch this college or any of our students napping"—*Tenth Annual Report of the Tuberculosis Committee, American Student Health Association, 1939 to 1940 by Charles E. Lyght, M.D., Chairman Journal-Lancet, April, 1941*

INCREASE OF INSANITY IN THE AGED

There will be a huge increase in mental disease of the aged in America if present trends continue, Dr Oscar Kaplan, University of California psychologist, predicted recently as reported in *California and Western Medicine*.

Dr Kaplan, who has just completed a study of the psychopathology of later life, said that the increase in insanity in America in recent years is due largely to a rise in the number of persons above 45 being admitted to institutions.

He pointed out that in 1937 approximately 49.5 per cent of all first admissions to state hospitals in the United States were more than 45 years of age.

On the basis of present trends the percentage of persons above 65 in the United States will double in the next thirty or forty years, and Dr Kaplan says that this in itself will add greatly to the number of older demented.

Other factors that will lead to an increase in the number of elder mental cases admitted to institutions include:

The increase in population of the United States as a whole means that the absolute number of persons above 45 will be greatly increased.

The improvement in public institutions and resultant rise in public confidence will make relatives more willing to part with troublesome older members of the family.

The trend toward urbanization, although it has been arrested in many places by the development of suburban areas, may make it necessary for families to give elder psychotic patients over to institutions. Urbanization creates problems unknown to simpler society, it is easier to care for seniles on a farm than in a city.

Better diagnosis may result in more commitments.

MEDICINE AND CULTURE

In an address delivered at the opening exercises of Cornell University Medical College, Dr Samuel Z. Levine stressed the social responsibilities of the physician. There is no doubt that our medical schools stand high and that in them the best instruction in the world is now given in various branches of medicine. But more is demanded of a physician than professional knowledge. The whole personality should be developed to exploit the full benefit of a scientific education. We have only to think of William Osler, Oliver Wendell Holmes, Harvey Cushing, and S. Weir Mitchell to grasp the significance of what Dr Levine preached. These were not only outstanding physicians but men of the world, men of culture, men who were leaders not only in their professions but in the community because of their broad human outlook.

More than any other science, medicine is concerned with human relationships. It is well enough to diagnose disease with the aid of the microscope, the stethoscope, and the test tube. Psychic factors are involved that defy the laboratory technician. It is precisely here that men like Holmes, Osler, Cushing, and Mitchell shone. Mind must meet mind at the bedside. In this sense Voltaire and Kant, Spencer and Macaulay have as much to convey to the practitioner as any professor of pathology. And so Dr Levine would establish a course in social medicine in every medical school to inculcate broad humanism as well as a sense of civic obligation. Give us this humanism and doctors will be in no danger of becoming bureaucrats under some system of "socialized" medicine that would compel them to treat their patients as living machines rather than as thinking human beings.—*Editorial, New York Times, September 11, 1941*

NO RETREAT, NO SURRENDER!

"The medical profession now represents the only important group in the United States which, while harassed from within and without, has shown no slightest signs of capitulation."

"On the basis of this fact, it has automatically placed itself in the position of an intellectual leadership of those individuals, groups, and institutions which seek to preserve the important elements of individual freedom and initiative and the principle of 'Free Enterprise'."

"If we live up to this opportunity and the serious responsibility it entails, the physicians of this country can—while preserving the independence of American Medicine—most importantly and vitally serve their country during its period of crisis and greatest stress."

—Dr Edward H. Cary, president,
National Physician's Committee for
Extension of Medical Science

Medicolegal

LORENZ J. BROSNAN, ESQ

Counsel, Medical Society of the State of New York

Privilege—Public Health Records

THE Court of Appeals has recently handed down a decision of considerable importance, passing upon the extent to which certain records compiled by reason of the provisions of the Public Health Law are privileged.*

Section 25 of the Public Health Law prescribes various procedures to be followed for the prevention of the spread of infectious, contagious, or communicable diseases and, among other things, directs that physicians shall report every case of such disease to the State Department of Health and to the Health Officer of the county seat, town, or village where the disease occurs. The State Sanitary Code has included a direction that information concerning known or suspected typhoid carriers should come within the provisions of the law. Said Section 25 contains the following language: "Reports of cases of tuberculosis, syphilis, chancre, and gonorrhea, including laboratory reports, shall not be divulged or made public so as to disclose the identity of the persons to whom they relate, by any person, except insofar as may be authorized by the public health council." It should be noted that the statute is not specific as to whether information concerning typhoid carriers could properly be divulged or whether such cases would be in the same category as cases of tuberculosis and venereal disease.

The section of the Civil Practice Act which deals with professional information generally, so as to prevent its disclosure in many situations, is Section 352 of the Civil Practice Act, providing as follows:

"A person duly authorized to practice physic or surgery, or a professional or registered nurse, shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity, unless, where the patient is a child under the age of 16, the information so acquired indicates that the patient has been the victim or subject of a crime, in which case the physician or nurses may be required to testify fully in relation thereto upon any examination, trial, or other proceeding in which the commission of such crime is a subject of inquiry."

Plaintiff, in the case referred to, instituted an action as administrator of the estate of a deceased person against the defendant, in which the claim was that defendant in her hotel had, being a known typhoid carrier, prepared and handled food served to the decedent. The action sought damages for the death of decedent from typhoid fever, the claim being that the fatal bacillus was transmitted by the food handler. In the course of the case the plaintiff made an application before the Court at Special Term giving notice, both to the County Health

Commissioner and the State Department of Health, to obtain an order directing each to produce upon the trial of the action all records that might indicate that the person in question was in fact a typhoid carrier. Upon the argument of the application the Attorney General and the County Health Commissioner were not in agreement as to whether they should oppose the application as an invasion of the privilege forbidding the disclosure of confidential communications. The motion was granted and the Court made an order for the issuance of a subpoena directing the production of the records in court. The County Health Commissioner appealed to the Appellate Division and that Court reversed the order.

The plaintiff took the matter to the Court of Appeals, where the order of the Appellate Division was reversed and that of the Special Term affirmed, the ruling being that under all the circumstances present, the records were not privileged and should be produced in court. In the course of its opinion, the Court of Appeals stated:

"We decide, however, that no privilege attaches to these records and that the public policy of the State, as expressed in the Public Health Law (Cons. Laws, chap. 45) and the State Sanitary Code, confers no such privilege. Privilege does not exist unless conferred by some statute (*People vs. Austin*, 199 N. Y., 446, 451). Here the statutes point the other way and seem to require that such records, insofar as they refer to known or suspected typhoid carriers, be made available in a case like this. The Sanitary Code, which has the force of law (Public Health Law, Sec. 2-b), requires local health officers to keep the State Department of Health informed of the names, ages, and addresses of known or suspected typhoid carriers, to furnish to the State Health Department necessary specimens for laboratory examination in such cases, to inform the carrier and members of his household of the situation, and to exercise certain controls over the activities of the carriers, including a prohibition against any handling by the carrier of food which is to be consumed by persons other than members of his own household (see Sanitary Code, chap. 2, regulations 1, 13, 31, 32, 33, and 34). Why should the record of compliance by the county health officer with these salutary requirements be kept confidential? Hidden in the files of the health office it serves no public purpose except a bare statistical one. Made available to those with a legitimate ground for inquiry, it is effective to check the spread of the dread disease. It would be worse than useless to keep secret an order by a public officer that a certain typhoid carrier must not handle foods which are to be served to the public.

* *Thomas vs. Morris*, N. Y., Court of Appeals July 29, 1941.

"Section 352 of the Civil Practice Act does not control here. The information in the health commissioner's files concerning the defendant, if there be any such information there, was not acquired by the health commissioner 'in attending a patient in a professional capacity,' nor was the information 'necessary to enable him to act in that capacity.' Although the information may have come to the commissioner from a physician in private practice the transmittal from that physician to the public officer was in obedience to the express command of Section 25 of the Public

Health Law. An intention that these records as to communicable diseases should not be kept confidential is found in the history of this same Section 25. Since 1913 it has provided as to one such disease (tuberculosis) that the report 'shall not be divulged or made public.' In 1939 the Legislature amended the section by naming three other diseases, not including typhoid fever, as to which the reports should be kept secret (see Laws of 1939, chap 159). It seems to follow that similar reports as to other communicable diseases are not so privileged."

Inquiries

YOUR counsel recently received the following inquiry:

"Dear Mr Brosnan

"As a member of the State Society, I should like to ask you a question concerning a case at which I shall soon have to appear as a witness.

"A husband is suing his wife, who was a former patient of mine, for divorce on the grounds that she married him knowing that she had syphilis. I believe that they were married in 1931, but I first treated her in 1933. I treated her at intervals through 1935. Her husband was examined by me upon my advice in 1933 and found to be negative, both from the standpoint of physical and serologic findings.

"The wife gave a history in 1933 of having acquired the disease ten years prior to that and had treatment in Montreal.

"In order to avoid saying too much and, therefore, laying myself open to a countersuit by the wife, how much am I allowed to testify? Can you also tell me what the legal method of waiver of the law of privileged communication is? If the Judge informs me that I can testify everything concerning the wife and that he has obtained such a waiver, is this final?

Very truly yours,"

Your counsel replied

"Dear Doctor

"I assume from your letter that you have given no information as yet to anybody concerning your treatment of the wife. In following this course you did absolutely the right thing.

"If you are subpoenaed on the trial and any questions are addressed to you regarding the wife's condition, I would refuse to answer on the ground that this is a matter protected by the Statute regarding confidential communications between patient and physician.

"It would not be necessary for you to take this position if, prior to the trial or on the trial, a written waiver was presented to you signed by the wife permitting you to testify as to your examinations of her, your findings, your treatment, etc. I do not imagine, however, that this waiver will be forthcoming.

"When you have taken the position on the trial above set forth, the Court will then be required to decide whether you should answer or not. If the Court decides that you must answer, that, in my opinion, would sufficiently

protect you since your failure to answer would result in your being placed in jail by the Court for contempt of court.

Very truly yours,"

In answer to an inquiry by a physician who is the director of a hospital, your counsel replied as follows:

"Dear Doctor

"In your letter you ask three questions

"1. This institution is a philanthropic one, devoted to the rehabilitation of the tuberculous. The patients all pay in part or are paid for in part by social agencies or governmental agencies such as departments of welfare. Can such an institution be successfully sued for alleged malpractice on the part of its physicians?"

"Generally speaking, it has been held that a charitable not-for-profit hospital is not responsible for the negligence of its nurses, doctors, or interns in the treatment and care of a patient unless it has failed to use due care in the selection of the particular individual for whose acts the hospital is sought to be held responsible. This rule of law is predicated on the theory that interns, doctors, and nurses are considered independent contractors and not employees of the hospital.

"The hospital, however, may be held responsible, even though it is what is called a charitable not-for-profit hospital, for administrative negligence. If, for example, the hospital authorities permit a dangerous condition to exist in a hospital and a patient is injured thereby, the hospital would be responsible. If the hospital authorities failed to use reasonable care in the conduct of the premises where the hospital is located, the hospital would be responsible.

"2. I am the director of the institution. I have one resident physician who carries on his work in the care of the patients but is under my general direction. Can suit be brought against the resident physician individually for any alleged error or malpractice?"

"The answer to this question is 'yes.' A resident physician can be sued individually for his alleged errors or malpractice.

"3. Are individual members of the board of trustees of such an institution liable for any of the acts of employees of the institution?"

"Generally speaking I should say the answer to this question is that the board of trustees would not be responsible for the acts of em-

ployees. However, there are situations where they would be responsible. For example, if they permitted an employee whom they knew or should know to be incompetent and damage

results, they might well be held responsible. The trustees to avoid responsibility must exercise vigilance in the affairs of the hospital.

Very truly yours,"

AID IN POLIOMYELITIS

The seasonal increase in poliomyelitis demands the utmost vigilance of physicians called to attend "cold" and "upset stomachs," says the *New York Medical Week*. No examination can be considered complete which does not include the neurologic tests that betray the presence of this disease. In view of the importance of early diagnosis, they should be made in all cases presenting any of the symptoms associated with poliomyelitis.

Once a diagnosis has been made, many therapeutic problems arise, particularly in connection with the procurement of necessary mechanical aids. The National Foundation for Infantile Paralysis offers practical assistance to physicians in the solution of such problems. Its offices, at 120 Broadway, have a complete list of "iron lungs" available throughout the country. These adult cabinet-type respirators, of which Manhattan has 24, are not to be confused with such other machines as chest type respirators, resuscitators, inhalators, or aspirators. Physicians desiring to locate one in an emergency will be glad to know where this information is available.

An equally important service offered by the Foundation is the free distribution of Toronto splints and Bradford frames for indigent patients. The central supply depot in New York City is prepared to meet any requests for such aid in behalf of the needy. No charge is made except for expressage.

It is not anticipated that the current seasonal rise in poliomyelitis will reach serious proportions. Nevertheless, the profession must be on its guard and prepared to institute proper treatment at the earliest possible moment. To physicians whose practice lies principally among the poor, it is a comfort to know that the National Foundation for Infantile Paralysis is prepared to supply their indigent patients with necessary therapeutic devices, which it might otherwise be impossible for them to obtain.

THE VANISHING HOME

Unfortunately, the home has become merely a place to go when everything else is closed, remarks Dr. M. A. Austin in *Clinical Medicine and Surgery*. A person is born in a hospital and is given a superficial education in schools that President Hutchins, of Chicago, says are the worst in the world and have the poorest teachers. The children go through adolescence in automobiles and, if lucky, are married in a church, they live in an apartment and entertain at a picture show, they eat at a drugstore, die in a hospital, are buried from a mortuary, and stored in a mausoleum. The only "God Bless Our Home" motto that I know of is in a museum. The responsibility of parenthood has been taken over by the state and a mother's pension. The responsibilities of one's parents is also a state function now, with old-age pensions. And too soon, I fear, the family physician will be merely a medical technician, subsidized by the government and as impersonal as his probable ally, the unemployment relief part of the social security setup.

We have made medicine such a nightmare to the laity by publicizing its attainments in unusual cases that the layman has developed a doctor phobia. Our various campaigns have undoubtedly done far more good than harm in giving information about tuberculosis, syphilis, cancer, and pneumonia, but with the demand for an early diagnosis is the inevitable accompaniment that this diagnosis and the treatment of these conditions take both time and money. As a direct outcome of this propaganda, the treatment of these patients has become more and more a state function.

I went through the influenza epidemic at Camp Custer during 1918, and in one day 141 boys died. In my opinion, as many of them died because of their environment as from the disease. The same hospital fear is engendered in many patients who die in hospitals.

LIST OF DISEASES UNDER INVESTIGATION

Rockefeller Institute for Medical Research issues the annual list of diseases under investigation in its hospital during 1941-1942, no charges being made for treatment, room, board, or any other services.

1 Bright's Disease—Children and adults with the nephrotic syndrome, and with nephritis in the early stages. 2 Heart Disease—Advanced heart failure. 3 Rheumatic Fever—Children (ages 6 to 12) in inactive stage of this disease, whose parents are willing to bring them to the Outpatient Clinic monthly, from October until June. 4 Acute Respiratory Diseases—

Acute lobar pneumonia and acute bronchopneumonia in adults, both preferably in early stages. An oxygen chamber is available for suitable patients. 5 Neurotropic Virus Diseases—Acute encephalitis and aseptic meningitis. 6 Nutritional Diseases—Advanced non-malignant diseases of the liver, and muscular dystrophies and atrophies.

Physicians should communicate by telephone (REgent 4-8000) or by personal application to the Resident Physician before sending patients to the hospital. An ambulance will be sent when necessary.

Woman's Auxiliary

To the Medical Society of the State of New York

County News

Albany A card party and bake sale was held at the auditorium of St. Peter's Hospital. Mrs. Herman Rosenblatt was general chairman, assisted by Mesdames John Horner, Daniel B. Lynch, Daniel O'Keefe, Darwin A. Bruce, Almer T. George, Daniel F. Hannon, Stanley E. Alderson, Donald D. Prentice, and Joseph V. Tobacco.

Columbia. The auxiliary opened with the fall meeting October 21, 1941, at Rainbows End, Valatie, with Mrs. George B. Adams, state president, as guest speaker. Following the famous Rainbows End luncheon, Mrs. Bowerhan, county president, opened the business meeting.

Mrs. R. P. Harris read a letter on behalf of the local chairman of Bundles for Britain thanking the auxiliary for their cooperation. Mrs. Henry J. Noerling, Sr., reported the meeting of the State Executive Board which was held in Auburn. Mrs. Joseph Gold, chairman of county legislative committee, attended a meeting at Mrs. Alfred Madden's home at Albany. Mrs. T. E. Bullard, president of Saratoga County, gave a short humorous talk, giving the reason for her belief that Columbia County is one of the best—referring to a lasting memory picture from a story related to her when she was a child.

Mrs. Adams paid tribute to Mrs. S. R. Reed, of Texas, who twenty years ago, before there was a National Auxiliary, established an auxiliary in Texas, feeling that the doctors' wives had a definite place behind the doctor as an auxiliary helper. The first idea of an auxiliary was, perhaps, that of sociability, but it now has a strong educational side. Auxiliary members should educate themselves in matters of health because it is their job to educate the public. There is also the service side—cancer control education program, health in the schools, tuberculosis work, and work for Red Cross and Bundles for Britain.

In her very interesting talk that was so much enjoyed, Mrs. Adams traced the growth of the auxiliaries in this state saying that "in six years the counties have grown from five to twenty-nine with a membership of over 2,000. There should be a friendliness, a unity of purpose in an auxiliary, the members should be well informed and they should be ready when called upon to assist the medical profession."

Contract bridge followed, attractive awards going to those with high scores. Those who attended the luncheon meeting were Mrs. George B. Adams, of Auburn, president of the State Auxiliary, Mrs. G. Scott Towne, of Saratoga, past-president of the State Auxiliary and now State Director, Mrs. Albert Vander Veer, of Albany, state recording secretary, Mrs. F. Leslie Sullivan, of Scotia, state treasurer, Mrs. Alfred Madden, of Albany, state legislative chairman, Mrs. J. J. Clemmer, of Albany, past-president of Albany County, Mrs. A. Tidd, of Auburn, Mrs. T. E. Bullard, president of Saratoga County, and Miss Frances Towne, of Saratoga. Members present were Mesdames Robert L. Bowerhan, Hugh G. Henry, Leonard Car-

penter, Harry Pattison, Henry J. Noerling, Sr., Henry J. Noerling, Jr., L. J. Byron, Cecil L. Schultz, Ralph F. Spencer, William D. Collins, John L. Edwards, R. P. Harris, Clark Rossman, O. H. Bradley, Joseph P. Gold, W. L. J. McDonald, and Harold Levine.

Errie. The county auxiliary has made a good start, with a busy program ahead. At the meeting on September 28, in addition to the regular program, Mrs. John D. Taylor, a member of the Emergency Volunteer Services and co-chairman of the Volunteer Activities in the Buffalo Defense Council, explained the working of the Volunteer Services and, in accord with their Executive Board, the membership at large voted to make this one of their projects for the year.

On October 2, twenty-five women of the auxiliary went via bus to the Eighth District meeting at Jamestown. There they enjoyed the hospitality of the newly formed Chautauqua Auxiliary. They also enjoyed meeting again Mrs. George B. Adams, state president. The program committee is sponsoring a book survey by Mrs. Ethel Holmes Munsey. The book to be surveyed is "My Scottish Husband," by Lady Neish. The proceeds of this project will go toward their gift to the Physicians' Home. On November 6 the auxiliary celebrated its second birthday with an informal dinner-dance in the Terrace Room of the Hotel Statler. The husbands of members were honored guests. A good time was had by all who attended.

Nassau. The program in advance is as follows: Meeting, November 25, Nassau Hospital Auditorium, 8:45 p.m., speaker Dr. Legrand Kerr, Brooklyn, "Dames, Doctors and Doings in the Drab Nineties." December 6, Medical Society and Auxiliary Dinner-Dance. December 16, Nassau Hospital Auditorium, 8:30 p.m., Auxiliary Christmas Party. January 27, Nassau Hospital Auditorium, 8:45 p.m., moving pictures shown by Dr. Eugene H. Coon. February 24, Cathedral House, 9:00 p.m., combined county medical society and auxiliary meeting, speaker Dr. Richard Brickner. March, Cancer Institute. April 28, 2:00 p.m., excursion to Meadowbrook Hospital, speaker Dr. A. J. McRae. April 27-30, New York State Medical Convention, Waldorf-Astoria, New York City. May 26, Nassau Hospital Auditorium, 8:45 p.m., auxiliary annual meeting. June 8-12, A.M.A. Convention, Atlantic City. June 17, auxiliary luncheon and bridge at 12:30 p.m.

Queens. At the Medical Building, Forest Hills, one of the largest membership teas in the history of the auxiliary was held. The hall was beautifully decorated with autumn leaves and flowers, and the large tea table with its glistening silver and centerpiece of roses was most inviting. Mrs. William Godfrey, president-elect, and Mrs. Raymond Murphy, past-president, poured. Mrs. Michael M. Schultz, president, welcomed the members and guests and thanked Mrs. Edwin Core, chairman of membership, and her commit-

tee Miss Virginia Gildershene Shuey, 15-year-old concert pianist and daughter of Dr and Mrs Paul Shuey, of Jackson Heights, rendered several classical selections. About 150 attended, twenty new members were interviewed.

At 8 30 P.M. the regular monthly meeting was held, with the president, Mrs Michael M. Schultz, presiding. After all the reports were read, Mrs William LaVelle, chairman of program, introduced the speaker of the evening, Mrs Wilbur Surbur, whose topic was "Marketing, Your Hobby." Mrs Frank Mozzola was hostess for this meeting.

Rensselaer Mrs. Marion L. Fahey, executive secretary of the Rensselaer County Tuberculosis and Public Health Association, outlined a plan whereby persons hiring domestic help will be asked to hire only those who can produce certificates showing them to be free of communicable diseases. If prospective employees have no such certificates, they should be asked to secure one from the clinic or the family physician. The auxiliary approved the plan and will name a com-

mittee to work with Mrs. Fahey and Dr. Fred T. Cavanaugh of the county medical society in carrying it out.

"Nutrition in Defense" was the topic of an address by Miss Mabel A. Milhan, Rensselaer county home demonstration agent. Mrs. John J. Rainey, auxiliary president, presided. Mrs. Rainey reported on the meeting of the State Executive Board. A nominating committee to report at the next meeting was selected. Mrs. Victor C. Jacobson, chairman, Mrs. Stephen H. Curtis, vice-chairman, Mrs. John F. Russell, Mrs. Minnie B. Stannard, and Mrs. James H. Donnelly. Two new members were admitted to the auxiliary: Mrs. James H. Donnelly, Jr., and Mrs. Eugene J. Hanratta, Jr. Tea was served at the conclusion of the meeting, with Mrs. John J. Quinlan and Mrs. Fred T. Cavanaugh pouring. Those who served included Mrs. Minnie B. Stannard, chairman of the hospitality committee, Mrs. John F. Russell, Mrs. Eugene J. Hanratta, Jr., Mrs. James H. Donnelly, Jr., and Mrs. John J. Noonan, Jr.

THE PRIME DILEMMA THROUGH ALL MEDICAL HISTORY

has been whether to tell the truth to a fatally ill patient, says an editorial in the *Journal of the Medical Society of New Jersey*.

There are those who believe that no good ever comes out of deception, that it is more honest and more humane in the long run to tell a patient that he is the victim of an incurable or inevitably fatal disease. There are those who say that such a practice is not only cruel but inaccurate, since tomorrow some new remedy may come into our ken which will remove a disorder from the classification of the hopeless to that of the treatable.

Patients themselves usually say "Tell me the truth, Doctor, I'd rather know, and I can take it." It is doubtful, however, whether even the sturdiest wants to have a death warrant read to him.

This much seems incontrovertible: the physician who discovers or diagnoses a hopeless ailment must transmit that information to some

responsible member of the family. To tell the patient that he is doomed to an early death, however, seems pointless, for it is impossible to see any good that could come out of such a procedure except in a small group of cases in which rearrangement of a man's business affairs might make for financial security in his family. Even in these cases it would seem sufficient to tell the patient that he would be too sick to carry on his business for a long time, and that he should adjust his affairs accordingly.

To transmit a verdict of inevitable death under any other circumstances, however, appears utterly without justification except perhaps the abstract one of rigid truthfulness, no matter what the cost. Since the emotional state of the patient is so large a factor and since the hopelessly sick patient has so few comforts, there would appear to be no justification for taking from the tiny reservoir still available, that one last blessing in Pandora's Box.

CARDIAC CLINICS TO BE HELD

A scientific session of the Committee on Cardiac Clinics of the New York Heart Association will be held Tuesday, November 25, at The New York Academy of Medicine, New York City. The meeting will start at 8 30 P.M. Dr. Cary Eggleston, associate physician at New York Hospital, will preside. Three papers will be presented: "Measurement of Cardiac Output by the Ballistocardiograph and the Direct Fick Method," by Dr. Hilmert A. Ranges, Department of Medicine, New York University College of Medicine, and Dr. Andre Cournand, Depart-

ment of Medicine, College of Physicians and Surgeons, Columbia University, "Concentration of Carbon Dioxide in Expired Air in Normal and Cardiac Patients," by Drs. Cameron Bailey and Paul Boyer, New York Post-Graduate Medical School, "Angiocardiograph in Congenital Heart Disease," by Dr. Marcy L. Sussman, radiologist at Mount Sinai Hospital.

The session will be open to physicians and medical students without charge. The New York Heart Association is a division of the New York Tuberculosis and Health Association.

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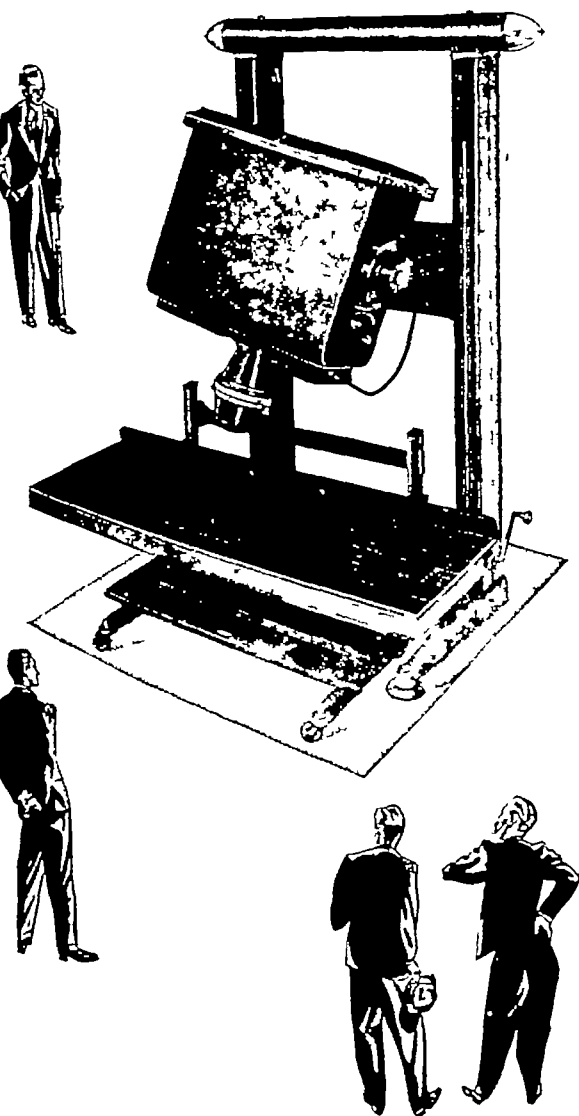
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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

RECEIVED

Body Mechanics in Health and Disease By Joel E Goldthwait, M.D., Lloyd T Brown, M.D., Loring T Swain, M.D., and John G Kuhns, M.D. With a chapter on the "Heart and Circulation as Related to Body Mechanics" by William J Kerr, M.D. Third edition. Octavo of 316 pages, illustrated. Philadelphia, J B Lippincott Company, 1941. Cloth, \$5 00

Standard Radiographic Positions. By Nancy Davies, M.S.R., and Ursel Isenburg, M.S.R. Octavo of 136 pages, illustrated. Baltimore, Williams & Wilkins Company, 1941. Cloth, \$2 00

Theory of Occupational Therapy for Students and Nurses. By Norah A. Haworth, M.A., and E Mary Macdonald. Octavo of 132 pages, illustrated. Baltimore, Williams & Wilkins Company, 1941. Cloth, \$2 00

Cerebrospinal Fever By Denis Brinton, D.M. Octavo of 163 pages, illustrated. Baltimore, Williams & Wilkins Company, 1941. Cloth, \$3 00

Manual of the Diseases of the Eye for Students and General Practitioners. By Charles H May, M.D. Seventeenth edition. Duodecimo of 519 pages, illustrated. Baltimore, William Wood & Company, 1941. Cloth, \$4.00

Pathology of the Oral Cavity By Lester R. Cahn, D.D.S. Octavo of 240 pages, illustrated. Baltimore, Williams & Wilkins Company, 1941. Cloth, \$5 50

Visual Outline of Psychiatry By Leland E. Hinsie, M.D. (Oxford Medical Outline Series.) Octavo of 109 pages. New York, Oxford University Press, 1941. Cloth, \$2 00

Fractures and Dislocations By Kenneth M Lewis, M.D. (Oxford Medical Outline Series.) Octavo of 217 pages. New York, Oxford University Press, 1941. Cloth, \$2 00

Histology and Embryology By José F Nondez, Sc.D. (Oxford Medical Outline Series.) Octavo of 199 pages. New York, Oxford University Press, 1941. Cloth, \$2 00

Thoracic Surgery By Charles W Lester, M.D. (Oxford Medical Outline Series.) Octavo of 141 pages. New York, Oxford University Press, 1941. Cloth, \$2 00

Abdominal Surgery By John E Hammett, M.D. (Oxford Medical Outline Series.) Octavo of 356 pages. New York, Oxford University Press, 1941. Cloth, \$2 00

Diseases of the Respiratory Tract. By Jacob Segal, M.D. (Oxford Medical Outline Series.) Octavo of 172 pages. New York, Oxford University Press, 1941. Cloth, \$2 00

Obstetrics. By Hervey C Williamson, M.D., and George Schaefer, M.D. (Oxford Medical Outline Series.) Octavo of 113 pages. New York, Oxford University Press, 1941. Cloth, \$2 00

Surgery of the Head and Neck. By Arthur S McQuillan, M.D. (Oxford Medical Outline Series.) Octavo of 138 pages. New York, Oxford University Press, 1941. Cloth, \$2 00

Sulfanilamide and Related Compounds in General Practice By Wesley W Spink, M.D. Octavo of 256 pages. Chicago, Year Book Publishers, 1941. Cloth, \$3 00

A Manual of Bandaging, Strapping and Splinting By Augustus Thorndike, Jr., M.D. Duodecimo of 144 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Paper, \$1 50

Out of the Test Tube By Harry N Holmes, Ph.D. Third edition. Octavo of 305 pages, illustrated. New York, Emerson Books, Inc., 1941. Cloth, \$3 00

The Foot and Ankle. Their Injuries, Diseases, Deformities and Disabilities with Special Application to Military Practice By Philip Lewin, M.D. Second edition. Octavo of 665 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$9 00

The New International Clinics. Original Contributions, Clinics, and Evaluated Reviews of Current Advances in the Medical Arts. Edited by George M Piersol, M.D. Volume III, New Series Four (September). Octavo of 300 pages, illustrated. Philadelphia, J B Lippincott Company, 1941. Cloth, \$3 00

Society and Medical Progress. By Bernhard F Stern. Octavo of 264 pages, Princeton, New Jersey, Princeton University Press, 1941. Cloth, \$3 00

A Text-Book of Pathology Edited by E T Bell, M.D. Fourth edition. Octavo of 931 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$9 50

Essentials of General Surgery By Wallace P Ritchie, M.D. Octavo of 813 pages, illustrated. St. Louis, C V Mosby Company, 1941. Cloth.

The Microscope By Simon H Gage. Seventeenth edition. Octavo of 616 pages, illustrated. Ithaca, Comstock Publishing Company, 1941. Cloth, \$4.00

The 1941 Year Book of Public Health. Edited by J C Geiger, M.D. Duodecimo of 544 pages. Chicago, Year Book Publishers, 1941. Cloth, \$3 00

The Baker Memorial. A Study of the First Ten Years of a Unit for People of Moderate Means at the Massachusetts General Hospital. By Haven Emerson, M.D. Octavo of 75 pages. New York, The Commonwealth Fund, 1941. Cloth

Wounds and Fractures. A Clinical Guide to Civil and Military Practice By H Winnett Orr, M.D. Quarto of 227 pages, illustrated. Springfield, Charles C Thomas, 1941. Cloth, \$5 00

[Continued on page 2266]



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[Continued from page 2264]

REVIEWED

A Textbook of Ophthalmology By Sanford R. Gifford, M.D. Second edition. Octavo of 470 pages, illustrated. Philadelphia, W. B. Saunders Company, 1941. Cloth, \$4.00.

This book is printed in clear type on good paper. It is replete with illustrations, the majority of which are actual photographs. The 14 color plates are remarkably good for a volume of this size. The subject of ophthalmology is surprisingly well covered, the chapters on the large phases of the subject, such as cataract, glaucoma, ocular motility, fundus changes in cardiovascular renal diseases being quite adequate for the author's purpose in presenting this book to the student and general practitioner.

As would be expected in a second edition, some chapters have been rewritten, some illustrations have been left out and new ones added, and the subject has been brought up to date in line with advances during the three years since the first edition appeared. In ocular therapeutics the use of the newer drugs for chemotherapy and the broadened use of the vitamins have been presented. As would be expected of the author of a book on ocular therapeutics, treatment of the various conditions in this book is well covered.

This is a readable, simple, and concise presentation and should prove valuable both to the student and for the general practitioner for whose use it is especially intended. It is to be hoped that its perusal by the latter especially will lead him not to think himself an ophthalmologist but to recognize the ocular conditions that require the aid of one to the furtherance of the eye health of his patients.

E. CLIFFORD PLACE

Man's Greatest Victory over Tuberculosis By J. Arthur Myers, M.D. Quarto of 419 pages, illustrated. Springfield, Charles C. Thomas, 1940. Cloth, \$5.00.

Another excellent book has arrived from the prolific pen of Dr. J. Arthur Myers. This book deals almost wholly with the historical aspect of the fight upon tuberculosis in animals. One can hardly conceive a more complete recording of the step-by-step progress that has been made in the control of this disease. While this particular book confines itself largely to the character of the efforts made in control of cattle tuberculosis, one is tremendously impressed with the fact that a technic has been evolved which if carried out to its logical conclusion should eventuate in the eradication of tuberculosis in man as well as in cattle.

Here is a book no student of medical progress should be without. It epitomizes the monumental work that has been done here in the United States to eradicate tuberculosis as a social and economic problem.

FOSTER MURRAY

The Heart in Pregnancy and the Childbearing Age By Burton E. Hamilton, M.D., and K. Jefferson Thomson, M.D. Octavo of 402 pages, illustrated. Boston, Little, Brown and Company, 1941. Cloth, \$5.00.

This volume represents a review by Drs. Hamilton, Thomson, and Irving of cardiac

patients treated during pregnancy at the Boston Lying-In Hospital over a seventeen-year period.

Rheumatic heart disease was found to be the most prevalent type of cardiac involvement constituting the etiologic factor in 92 per cent of the number of pregnant women with cardiac involvement. Congenital, syphilitic, and degenerative lesions, along with deficiency heart disease, were the causative factors also encountered in this series.

Prophylactic treatment and the treatment of cardiac failure is thoroughly discussed. Postpartum complications are considered. The heart in toxemias of pregnancy is thoroughly covered. The normally pregnant patient is compared with the pregnant cardiac patient. Case reports are included to review the subject. It is a reliable, sane résumé of an important phase of obstetrics.

JAMES F. BUTLER

Radiologic Physics By Charles Weyl, S. Reid Warren, Jr., and Dallett B. O'Neill. Octavo of 459 pages, illustrated. Springfield, Charles C. Thomas, 1941. Cloth, \$5.50.

This book was written as a text to be used in the courses in radiology given in the Graduate School of the University of Pennsylvania. As such, the book probably serves its purpose well. It covers all the necessary electrophysics required for an understanding of modern x-ray equipment. The book is divided into two parts. The first deals with the more general principles of electricity, electromagnetism, and electronics. The second part considers the more direct application of these principles to x-ray and further discusses such matters as principles of technic development, and stereoscopy.

The book's chief defect lies in the brevity of most of its presentations. For proper use of the volume one requires either an instructor to provide additional background material or a good physics text must be always at hand and be studied in conjunction with the main work. To meet this requirement the authors have included a comprehensive bibliography at the end of each chapter. In addition, in the appendix there is a brief review of the mathematical concepts necessary for an understanding of the book.

The volume indicates clearly all the material that should be learned for a good working knowledge of radiologic physics and, if used in a course or together with more detailed texts, it serves its purpose admirably.

A. L. L. BELL

A Diabetic Manual for the Mutual Use of Doctor and Patient. By Elliott P. Joslin, M.D. Seventh edition. Duodecimo of 238 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$2.00.

This book fulfills its title very well. It is the seventh edition of an original and classic manual of its type. It is rich in scientific material and practical suggestions. It abounds with clinical considerations, and one will find of particular interest case reports with their follow-up.

[Continued on page 2263]

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The technique developed by the American doctors in the treatment of these cases has been so successful that it has attracted the attention of medical men in all parts of the island kingdom. Many British doctors have sought the opportunity to watch and study the technique of their American colleagues.

Plastic surgery and skin-grafting have also taxed the skill of the hospital staff, especially among patients from the air force who have been burned about the hands and face when bailing out of flaming planes. Other delicate operations performed with remarkable results include those of brain and spinal cases.

The delicate brain operation that restored the power of speech to a 7-year boy struck dumb by bomb injuries, and which became international news, is but one example of what the American Hospital calls a regular performance in the line of duty.

This tremendously important experience in war surgery is being made available to America for our own defense measures through the records which are being turned over to the Committee on Wound Infection of the National Council of Medical Research in this country.

Pioneer work in compound fracture treatment, brain and spinal operations, plastic surgery and skin grafting, at the American Hospital, is supplying a medical program valuable to America's defense plans.

The fine work done will be materially expanded in January, 1942 when the hospital moves to larger quarters at Oxford. Here it will take over a new hospital building of 200 beds, and its staff will be increased by some 60 new members recruited in America.

The cost of operating the American Hospital for 1942 has been estimated by the British War Relief Society of America, at \$300,000. The hospital has been wholly supported by contributions made through this Society.

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[Continued from page 2268]

General considerations, as well as specific problems pertaining to diabetes, are presented in a clear and concise manner. Its small cost makes it possible for all physicians, as well as diabetic patients, to include it among their current books.

E R MARZULLO

The Principles and Practice of Ophthalmic Surgery By Edmund B Spaeth, M D. Second edition. Octavo of 886 pages, illustrated. Philadelphia, Lea & Febiger, 1941. Cloth, \$10.

The second edition of *Principles and Practice of Ophthalmic Surgery*, coming so soon after the first, not only speaks for the popularity of this work but demonstrates beyond a doubt that it is authentic in its field.

The present volume has been brought up to date not only by elaboration of the text but by the addition of numerous illustrations.

The reviewer is particularly impressed by the logical plan of this book, by its orderly presentation of each problem, and by the step-by-step sequence of each technical description.

This arrangement makes the book ideal as a study text for the ophthalmic resident and yet makes readily accessible any aspect of a problem which the "arrived" ophthalmologist may choose to brush up on before he enters the operating room.

The illustrations, with but one or two exceptions, are readily understandable and the diagrams, charts, and tables are a decided asset in supplementing the text.

The author has quoted directly from other authorities in many instances, thereby showing his lack of bias in favor of his own ideas to the exclusion of others. This plan of a broad and inclusive point of view has resulted in a much wider scope than other similar works that have set forth only one man's ideas and experiences.

Because of this, the reviewer would think it justifiable to call this work of Doctor Spaeth's, the "Bible of Ophthalmic Surgery."

JOHN N EVANS

The New International Clinics, Original Contributions, Clinics, and Evaluated Reviews of Current Advances in the Medical Arts Edited by George M Piersol, M D. Volume II, New Series Four. Octavo of 299 pages, illustrated. Philadelphia, J B Lippincott Company, 1941. Cloth, \$3 00.

This issue of the *New International Clinics* contains ten miscellaneous original contributions and two symposiums, one from Yale and the other from the University of Louisville. The comprehensive review is that by Tumen and Lieberthal of chronic gastritis. Special mention should be made of the excellent articles on the treatment of bronchospastic dyspnea by Wendkos and Robertson and that on cryptorchidism by Hamilton and Hubert.

MILTON PLOTZ

Pharmacology By J H Gaddum, Sc D. Octavo of 407 pages, illustrated. New York, Oxford University Press, 1940. Cloth, \$6 00.

This book is devoted, as the title would suggest, almost exclusively to pharmacology. In

it one finds an authoritative discussion of sound physiologic and pharmacologic principles.

A study of the general principles so clearly presented in this work would fortify the physician against the unscientific and extravagant claims made for so many drugs.

CHARLES SOLOMON

An Introduction to Dermatology By Richard L Sutton, M D, and Richard L Sutton, Jr, M D. Fourth edition. Octavo of 904 pages, illustrated. St Louis, C V Mosby Company, 1941. Cloth, \$9 00.

This book is a condensed volume from the authors' tenth edition of *Diseases of the Skin* and contains approximately 800 pages of text with over 700 photographic cuts including many photomicrographs. Thirty-five pages of bibliography are appended, arranged according to chapters, under disease headings, and set up so that they make an easy, ready reference. These references are, of course, only the outstanding ones applying to the subject and are completely up to date.

Anyone who has read the authors' more comprehensive text will appreciate that while this book is written for the student and general practitioner, it is complete and well written. It is not a compend, nor does it omit a great number of the less common diseases. The only abridgement is found in lengthy description of variations, in theories of etiology, and in ideas of therapy.

The reviewer heartily endorses this as an excellent book, more than sufficiently complete for all but the specialist and research worker. In fact it could even be used by them for its concise capitulation of pigmentations, lymphoblastomas, gangrene of the skin, etc.

E ALMORE GAUVAIN

Air Raid Precautions (In Ten Parts.) Reprinted by Permission of the Controller of His Britannic Majesty's Stationery Office. First American Edition. Octavo. Brooklyn, Chemical Publishing Co, 1940. Cloth, \$3 00.

Air Raid Precautions is an American edition from the Great Britain Ministry of Home Security. The volume is in ten sections and is expertly prepared by various civil and military groups who have had the most recent experiences in air-raid defenses.

Duties of the municipal services, including the Fire and Police departments and various other civil and volunteer units, are outlined, as well as the multiplicity of personnel training prior to attacks, classifications of buildings, etc., as to ability to withstand bombardment, and the planning and construction of shelters. Emphasis is placed on the type of equipment to issue and its care, inspection, repair, and storage.

Two sections are devoted to gas detection and identification service, care and inspection of respirators and individual equipment, and special protective clothing against chemical warfare agents.

Air Raid Precautions is a valuable guide for any individual or municipality interested in such a service.

CARL W LUPO

[Continued on page 2270]



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BOTTLENECK OF FATIGUE

A gentleman in the West remarks that "Pleasure travel is playing a vital role in relieving the strain of overwork in the national defense emergency. Men cannot work like machines. A vacation of pleasure travel is proving the cure for the danger of a bottleneck of overworked executives."

Maybe the gentleman from California has something there. If it isn't true as yet, physicians will undoubtedly, as time goes on, have an increasing number of patients who have cracked under the strain. The cure may not be as simple as this travel-minded gentleman would have us all believe, but as every physician knows, a trip of even one day away from the grind certainly is an adjuvant in treating frayed nerves and tired mind and body.

In addition, as this man explains, "Travel makes better Americans. It is a marvelous thing for people to travel over and know their own state. It is still better for them to travel over their own country. A person traveling over the United States from the Alleghenies to the Pacific learns to appreciate his part-ownership of the most valuable real estate on earth. He learns to know America. And when you know America, you won't let anything happen to America."

"We need only to look at Canada," he adds, "which has been at war for two years. There every effort is being made to encourage travel and recreation, for every Canadian realizes the vital necessity of keeping himself physically and mentally fit to do his or her share."

SLEEP IN SEASON

In an article setting forth new rules for sleeping, an Australian newspaper states that we are seasonal sleepers—that wintertime sleep is not the same as slumbers at other times of the year.

"You will fall asleep most easily in the spring, and you will move around less and dream more."

"You will have the hardest time to go to sleep in summer."

"In the autumn it's all turned around. You'll move around more, and will do less dreaming than at any time of the year."

Weather, too, affects sleep according to the news article. As the barometer goes down, restlessness goes up. The soothing monotone of rain falling on the roof may induce slumber, but a person will probably be more restless on a damp night.

CUSS WORDS AID BOMB VICTIMS

Not that railwaymen are any more addicted to profanity than the ordinary run of mortals, but the Queen's Canadian fund received an unexpected contribution when a Canadian National train crew fined themselves every time a naughty word slipped out. By mutual consent it was agreed that any member of the crew who said "S—%—1/2—" or "S—%—&—" (literal translation "oh fudge!" and "dear me!") would place a penny in a box.

When the train reached Moncton terminal, the box was filled to overflowing so \$9.56 went to aid bomb victims in Britain.

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[Continued from page 2268]

Dr Colwell's Daily Log for Physicians A Brief, Simple, Accurate Financial Record for the Physician's Desk. Quarto Champaign, Illinois, Colwell Publishing Company, 1941 Cloth \$6 00

This attractively bound volume is a continuing evidence of the appreciated efforts toward simplification of the physician's business routine. We rate it among the best for its labor-saving and efficiency.

ANDREW M BABEY

Textbook of Pediatrics By J P Crozer Griffith, M.D., and A. Graeme Mitchell, M.D. Third edition. Octavo of 991 pages, illustrated Philadelphia, W B Saunders Company, 1941 Cloth, \$10

The third edition of this textbook has been revised from cover to cover. Its name has been changed from *Diseases of Infants and Children*. It stands as one of the two best general books on pediatrics for students in this country.

Like most modern textbooks, collaborators have greatly aided, so that special fields of endeavor have been covered by those who have done special work in a particular field. The book was rewritten by Dr Mitchell and various chapters were sent to the collaborators for criticism and advice. Thus, the style remains the same throughout.

There is no bibliography for this edition. The authors thought it would be too bulky in a single volume—that is, if it were complete. However, a bibliography of the edition can be secured by writing to the Society for Research in Child Development, National Research Council, 2101 Constitution Avenue, Washington, D C.

Since receiving this book for review, both authors have died. No greater monument than this book could be erected to these great and beloved teachers of pediatrics. Dr Griffith lived to be an elderly man and he saw the field of pediatrics develop from its infancy, while Dr Mitchell was in the prime of a wonderful teaching career.

THURMAN B GIVAN

The Story of Clinical Pulmonary Tuberculosis. By Lawrason Brown, M.D. Octavo of 411 pages. Baltimore, Williams & Wilkins Company, 1941 Cloth, \$2 75

During the many years that Dr Lawrason Brown lectured at the Trudeau Post-Graduate School for Pulmonary Tuberculosis, he delivered a series of talks on the "Historical Aspect of the Clinical Study of the Disease." These lectures embrace knowledge of the subject from the time of the earliest discoveries to those of the present time. They proved to be of absorbing interest to those privileged to hear them and, on the urging of many friends, Mrs Brown has brought these lectures together and published them in a single volume, much to the advantage of us all.

The book is divided into four parts. The first part is episodic in character, dealing with events coincident with existing knowledge in and about the years 1700, 1800, and 1900. The second part deals with "Diagnosis of Early Pulmonary Tuberculosis," stressing particularly the contributions of Laennec and his successors, "Early Publications in Germany and Austria", "The Diffusion

of Knowledge in England", "Diagnosis in America", and, last, a chapter on "Diagnosis by X-Ray." This last chapter was contributed by Dr Brown's close associate, Dr Homer L. Sampson. The third part deals with the "Modern Surgical Treatment of Pulmonary Tuberculosis," stressing largely the evolution and development of surgical methods in general. Much of this chapter has been written by Dr Edward W Archibald, of Montreal, Canada. The fourth part of the book is devoted to some sidelights of importance—namely, "Laennec and His Writings," "The Story of the Stethoscope," and "Early Medical Journals."

The book as a whole is highly readable, is extremely well documented, and has a most complete bibliography. It is invaluable to the student of pulmonary tuberculosis.

FOSTER MURRAY

Brucellosis (Undulant Fever) Clinical and Subclinical. By Harold J Harris, M.D. Octavo of 286 pages, illustrated. New York, Paul B Hoeber, Inc., 1941 Cloth, \$5 50

Brucellosis is a disease concerning which there is a growing interest on the part of the medical and veterinary profession, as well as the public health authorities. This book is, therefore, timely and informative. It may very well be expected to focus attention on this infection, which is desirable because of the controversial nature of so much that has been written concerning it. The author describes the various aspects of the disease in their logical sequence, giving many personal observations and quoting from many of the authors whose publications are listed in the appended bibliography. Although he makes mention of a personal series of 249 cases, certain of which he cites to illustrate points made in the text, Dr Harris has not included an individual tabulation of his patients by age, sex, occupation, suspected mode of infection, diagnostic proofs, symptoms, complications, etc. He has attempted, however, the important task of bringing forth to more searching scrutiny the subject of chronicity, or latency, as related to the brucella infection. In this he shows keen alertness to its public health significance, as well as to the realization that one of our main problems is to define clearly this disease. As Henry Dietrich has said "Undulant fever is without pathognomonic symptoms or clinical signs, and one is dependent on a reliable laboratory for a final decision in a given case." Even tissue diagnosis, as Dr Harris agrees, is not yet of practical value, and the necropsy observations that have reached the literature are practically negative, at least for specific findings. In contradistinction to other milk-borne diseases, like typhoid and septic sore throat, it is rarely possible to trace the suspected outbreak to a given dairy. Even all the laboratory procedures used for its diagnosis are subject to a variable interpretation with the exception of a positive culture, and this is admittedly difficult to obtain and infrequently found. Most all statistical and serologic evidence tends to establish that brucellosis (Brucella abortus), is most infrequent in children under 10 years of age, although they are the greatest consumers of milk. On the contrary, the diagnosis is rather commonly made among those

[Continued on page 2272]



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SEE PAGE 2273

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A Way to Collect Money—Though Not Recommended

Ghandi's custom of fasting as a protest may appear useless to Western ways of thinking, but to the Hindu is the "mode" of asserting one's right to redress. Throughout India of old, the practice of "sitting harna" was resorted to by creditors against their debtors who had defaulted, and in some parts of that country the practice is still in vogue.

There the creditor places himself before the door of his

debtor, there to remain until the debt is paid. The expected payment is seldom delayed for public opinion would instantly and severely punish the debtor who allowed his creditor to become exhausted or to die of starvation before his doorway.

It may work in less calloused nations, but it is not to be recommended here for who would want to sit out the payment of our rising public debt?

Baldness Always a Hair-Raiser

Baldness has baffled the human race since the beginning of the lowest form of civilization, and perhaps has provoked more remedies than any malady the human race has ever experienced.

Some five thousand years ago they had remedies for this bane of man, but oddly enough the first recorded prescription was for a woman—for Ses, the mother of Teti who was King of Upper and Lower Egypt. It is to be

found in the famous Ebers Papyrus, a medical treatise still in the possession of the University of Leipzig unless it was burned in one of Hitler's purges of non-Aryan literature.

While testimonials as to its efficacy are lacking, it did have some rather impressive-sounding ingredients. The prescription called for such "drugs" as "toes-of-a-dog," "refuse-of-dates" and "hoof-of-an-ass."

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Say you saw it in the NEW YORK STATE JOURNAL OF MEDICINE

[Continued from page 2270]

adults who handle infected animals and their carcasses. The evidence would seem clearly to suggest a contact infection. Much information is needed, however, before too many conclusions are drawn as to prophylaxis and dissemination of a disease, the clinical aspects of which we possess so little knowledge.

JOSEPH C. REGAN

I. *Help Your Doctor to Help You When You Have Sick Headache or Migraine*. Duodecimo of 37 pages. New York, Harper & Brothers, 1941. Cloth, \$0.95.

II. *Help Your Doctor to Help You When You Have Colitis*. Duodecimo of 30 pages. Cloth, \$0.95.

III. *Help Your Doctor to Help You When You Have Food Allergy*. Duodecimo of 50 pages. Cloth, \$0.95.

IV. *Help Your Doctor to Help You When You Have Gallstones and Diseases of the Gall-bladder*. Duodecimo of 41 pages, illustrated. Cloth, \$0.95.

V. *Help Your Doctor to Help You When You Have Gastric or Duodenal Ulcer*. Duodecimo of 53 pages, illustrated. Cloth, \$0.95.

The purpose of this series of small booklets is to provide manuals of the type that a doctor might want to give to his patients in order to supplement his verbal explanations and instructions.

I. "Migraine"—This is clearly and well written. One wonders why it was necessary to tell the patient where his physician could find the latest therapy on the subject. (Shouldn't the physician know or find out for himself?) It seems to the reviewer that the text strays a bit too widely from its avowed purpose when it lists and suggests simple, as well as proprietary, drugs used in treatment of this condition.

II. "Colitis."—This is a most sensibly written little volume. It discusses "so-called colitis" and exposes much of the "hokum" surrounding it. Sane and wholesome advice to those who suffer from this disturbance is given. This material is worth reading by many doctors and by high-strung persons suffering from occasional or frequent "bellyaches" with or without diarrhea.

III. "Food Allergy"—"Fitting the diet to the individual" is the essence of the advice given in this little book. This difficult and complex problem is handled in a masterful way. This again is a volume from which both sufferer and doctor can profit greatly.

IV. "Gallstones and Diseases of the Gall-bladder"—It would seem that too much detail is given to the lay person about x-ray diagnosis. The discussion of technical diagnostic methods and criteria is overstressed. This volume was apparently written by a surgeon, who discusses the case for and against immediate and future surgery intelligently, he says actually and perhaps in truth, "there is no medical treatment for this disease."

V. "Gastric or Duodenal Ulcer"—For lack of a more modern and probably more rational treatment for ulcer, the author adequately discusses frequent feeding, neutralization of acid, and the like in the handling of this condition. Sticking to the Sippy routine, as he does, appears a bit unprogressive in the light of recent knowl-

edge. The indications for surgery are well discussed. The inclusion of ulcer-like diseases, as well as the outlook for possible improvement by medical therapy in the near future, seems wise.

In general, one can say that these five booklets are valuable adjuncts to the physician in the necessary explanations given to the patient about his condition. Both editors and authors must ever keep in mind that narrow, dangerous dividing line beyond which they must not go, particularly in advising specific treatment, lest they permit the booklets to become competitors of the doctor.

BENJAMIN M. BERNSTEIN

Cardiac Classics. A Collection of Classic Works on the Heart and Circulation with Comprehensive Biographic Accounts of the Authors. Fifty-Two Contributions by Fifty-One Authors. By Frederick A. Willius, M.D., and Thomas E. Keys, M.A. Quarto of 858 pages, illustrated. St. Louis, C. V. Mosby Co., 1941. Cloth, \$10.

Physicians interested in diseases of the heart and circulation will welcome the appearance of *Cardiac Classics*. The authors have made wise selections from the vast amount of original material dealing with cardiology, placing in one volume the observations of many of the masters. The book is entertaining, but more than that it is of value in locating source material. Its use may stimulate others in the field of historical medicine. It will be of value to the teacher because in it he can find just what Austin Flint said about his murmur, Durozier about his sign, and Fallot about his tetralogy. The short biographic sketches about each author are well written, and the illustrations accompanying them help the reader to picture what manner of men were pioneers in cardiology.

EDWIN P. MAYNARD, JR.

A Short History of Psychiatric Achievement With a Forecast for the Future. By Nolan D. C. Lewis, M.D. Octavo of 275 pages. New York, W. W. Norton & Co., 1941. Cloth, \$3.00.

This is a small and yet painstaking review tracing the development of psychiatry through the ages. It is a historical survey and yet a most comprehensive scientific analysis of the types of thought and evolution of principles that have been the basis for the development of present-day psychiatric achievement. It is interesting reading and is recommended alike to the student of medicine, the practicing physician, and the psychiatrist.

ABRAHAM M. RABINER

The Medical Clinics of North America. July, 1941. Volume 25, Number 4. (Mayo Clinic Number) Octavo. Illustrated. Philadelphia, W. B. Saunders Company, 1941. (Six numbers a year) Cloth, \$16 net, paper, \$12 net.

The July number of the *Clinics* will appeal chiefly to the specialist in radiology, for it is devoted entirely to diagnosis and treatment by x-rays and radium. Three more or less clinical articles on ulcers and intestinal obstruction will be of interest to the internist and general practitioner.

ANDREW M. BABEY

NEW YORK STATE JOURNAL OF MEDICINE

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Editorial

Common Sense

For pure, unadulterated common sense we commend the editors of the *Woman's Home Companion* for their editorial comment on the alleged bad health of American youth as supposedly revealed by the medical examinations for the Army. We quote

One More Rumor Scorched

Don't believe all you hear about the bad health of American youth as revealed by the medical examinations for the army. For the stories conflict and most of them are not true except for one group or some small area. Such wild reports, as that 40 per cent fail in vision tests, have led us to go to some pains to get official figures. They show the following:

It is estimated that 45 per cent of those examined are classed as "unavailable for general military service."

The major cause of rejection is dental defects, found in 18.7 per cent of those rejected. This means that just under 8.5 per cent of all those men examined have bad teeth—and no physical trouble shows any higher percentage.

The next greatest cause of rejection is eye abnormality—11.1 per cent, or about 5 per cent of all those examined.

Next in order come musculoskeletal defects, then mental and nervous diseases. Flat feet, about which you hear a lot, cannot be very prevalent, for of all the men examined less than 1.5 per cent have feet defective in any way.

So there seems to be little reason to worry about the general physical condition of our young men. Let's devote ourselves to the state of the nation instead.¹

It is a source of considerable satisfaction for physicians to know that the great number of mothers and sisters, yes and fathers, too, of the men who have been disqualified for full military duty, who read the *Woman's Home Companion*, will be correctly informed as to the facts.

It is significant that such comment as this, shorn of political considerations, divorced from the economic compulsions of the professional welfare workers' approach, is beginning to present conclusions from the facts, conclusions that are sane and well founded. We could wish for more of this sort of common-sense journalism.

¹*Woman's Home Companion* 68 No. 11, 2 (Nov.) 1941

Attention! China Calling

Early this year the JOURNAL received from Chengtu, Szechuan Province, China, a request for reprints of medical articles. Because of the difficulty in transmitting mail, second-class matter is being held up, if not permanently, at least temporarily. No publications have been received

later than May of this year in that province at least.

The JOURNAL's correspondent is Dr. Eugene Chan of the Department of Ophthalmology, Eye, Ear, Nose and Throat Hospital of the Associated Universities in Chengtu. He says (Sept. 6, 1941)

"Your reply of March 18 arrived just before I was rushed to the operating room for an emergency appendectomy. When I barely recovered from my operation, Chengtu experienced the worst air raid since the outbreak of the Chinese-Japanese War. On July 27, 108 Jap planes bombed this city. More than 2,000 civilians were killed and many wounded. We had a terribly busy time in our hospital. Part of my house was also destroyed. On Aug 11 and Aug 31 this city was again raided. The damage done by the last two raids, however, was slight. You can understand why under such circumstances I was unable to answer you earlier.

"I am very pleased to hear from you and am particularly glad to know that you are willing to copy some ophthalmologic articles and send them to me. I am certainly grateful to you for your courtesy and help. In our hospital we have a Journal Club which meets every Wednesday evening. We review and discuss all kinds of ophthalmologic subjects. Because our journals are not coming in regularly at all, we are trying to obtain reprints from various authors to supplement our journals. Furthermore, the back numbers of our journals are not complete. This is September. We have

received only the March issue of the 1941 *Archives of Ophthalmology* and the May issue of the 1941 *American Journal of Ophthalmology*."

If this is true of the special journals, it must also be true of the others. The JOURNAL suggests that the Journal Club in Chengtu should be aided in every way possible. It suggests that every ophthalmologist who reads this and who has extra reprints available, make it his business to send one to the Journal Club by first-class mail.

It is further suggested that articles other than those on ophthalmology be sent to the Journal Club as a distributing center. When any one of you reads an article in this or any other medical periodical, mark it if it is of interest to you, then, when you have read it, cut it out or have your secretary copy it on onion-skin paper if you wish to retain the original. Send this by first-class mail to

Dr Eugene Chan
E E N T Hospital
Chengtu, Szechuan
China

Here is something personal which you can do to keep the light of learning glowing in the far places of the earth. Do it consistently. Do it now!

Medical News

"Most reputable physicians," says the *Westchester Medical Bulletin*,¹ "abhor individual publicity of any kind. Unfortunately, doctors have failed to take into account the fact that in recent years medical news has become more and more interesting to the general public.

"Recently, organized medicine has become more vocal, more adept in the use of legitimate media of public information.

However, as news releases concerning general problems and scientific developments in medicine have become more and more numerous, local newspapers everywhere have become more

interested in finding local medical items of lay interest."

Out of this fact arises the delicate problem of purely local medical-press relationships. The time has long passed when this problem can be ignored or its solution be put off. Public interest in medicine is lively and legitimate. There are two angles to the lay curiosity—one, interest in medicine's scientific achievements, the other, interest in both doctors and patients as living, vital human beings, creatures of God endowed with a mixture of nobility and frailty, citizens of the community, relatives, perhaps, or friends.

How should this local problem be handled in the best interest of all? The solution does not lie certainly in a mutually antagonistic attitude

"As might be expected, local physicians everywhere individually have been far more conservative in their feelings toward publicity than their county, state, and national organizations. And, with very good reason, for in medical publicity what is sauce for the geese as a flock is not sauce for the gander as an individual. A medical society can and should actively undertake to interpret itself and its purposes to the public, but the traditional restraints upon an individual physician issuing news releases about himself are, in Westchester County at least, and elsewhere so far as we know, no less stringent than ever before.

"Hence, as local papers have begun publishing items of local news interest concerning medicine more and more frequently, the doctors involved in these news reports have become increasingly apprehensive. This has resulted in many cases in the adoption of a hang-up-the-receiver technic or slam-the-door policy on the part of individual physicians—a policy which, whatever it may have prevented, has certainly not produced more friendly relationships between the profession as a whole and the members of the fourth estate.

"Editors, naturally enough, finding their obvious sources of medical information more than unresponsive, have sometimes short-circuited the medical profession in the preparation of their news releases, resulting in the publication of many erroneous statements about medicine usually obtained from laymen or nurses or from seeking doctors of questionable reputation.

"There is much to be said for the viewpoint of the editors in this matter. They have good reason for complaint in many cases. Their job is to deliver all the news of general and local public interest. Medical news is in an important category, and the interest of the public in medical news is proved beyond cavil. If the editor of a local paper is denied the privilege of consulting the doctor concerned in a given case he can scarcely be blamed for errors in description or in choice of material. It behooves the medical profession to stand ready to pre-edit, insofar as they may have the opportunity to do so, these medical news

items. Such services can be given with the understanding that the doctor's name will not be used or, if mentioned, will not be given any unwelcome professional boost. It is completely understandable that a news item of local interest demands, in many cases at least, casual mention of well-known local medical men involved in the case. Where only one local physician is involved, however, or if the use of the name might be construed as indirect advertisement of the peculiar skill of the particular physician concerned, the physician's name should not be mentioned.

"A factor of paramount importance which should be understandable to medical men is the establishment of confidence between the newspaper man and the physician whom he is interviewing in regard to a given case. Any newspaper man worth his salt knows that he can never get anywhere in his line of work if he violates confidences, and a physician in discussing a case with a newspaper man, unless the latter is entirely unknown to him, should feel perfectly free to discuss all sides of the case if he has made it clear to the reporter just what aspects and what angles of the story must not be reported and are mentioned merely to enable the newspaperman to understand the incident as a whole.

"It should be possible to enable the members of our profession to feel more at home in their relationships with the press, in order that we may help the editors to produce medical news which is authentic as well as interesting reading. Unless we do cooperate in this manner we cannot blame the newspapers if they continue to paddle their own canoes to the best of their ability."

This is sound common sense and, we feel, an argument that cannot fail to appeal to both editors and physicians. Just as doctors in the practice of their profession must work with knives and poisons but with trained skill, so newspaper editors must use words and ideas, potentially just as dangerous as the physicians' tools in their business. The exact word, the correct slant to a story, is difficult to achieve in any case, it is virtually impossible where all the facts are not known. The county medical society can do much to smooth the path both for the physician and the editor.

"The Medical Society in Westchester has expressed its willingness to cooperate with the

newspapers by maintaining a clearing house for all medical news items. Such a plan both the editors and doctors feel may be of great value to the newspapers. The plan is simplicity itself. Given a lead on some medical news of potential public interest, the newspaper editor will simply call the executive office of the society and ask for verification, clarification, or elaboration of the medical facts as reported to him. The executive office will then promptly contact a reliable medical source, usually in the locality involved and within the shortest possible time will give the newspaper the information, opinion, or advice it needs or make suggestions concerning modification of the newspaper's proposed report.

"In this way the doctors involved would be freed of any personal responsibility for the part they have played in the newspaper account as it finally appears. They are free to reveal what should be revealed without the fear that what they say will be wrongfully construed by some of their confreres. Such news releases may even be published with a small by-line indicating that they have been passed by the "Medical Information Service"

of the county medical society. This plan is not a theory but a realized fact which has demonstrated its effectiveness more than once in recent months. It represents a genuine effort, and a promising one, to take some of the "bugs" out of the relationship between physicians and newspapermen and to provide a mechanism whereby the two can cooperate more effectively for the public's good.

"Whatever methods may eventually be used, it is certainly true that in Westchester, at least, a definite spirit of cooperation is developing between the press and the medical profession."

We republish this contribution to the knotty problem of medical-press relationships not as a theoretic solution but as one that has been tried and found to work. It is earnestly hoped that the plan will be given a thorough study. It goes to the heart of a matter, that is becoming of greater importance as interest in things medical continues to become more widespread.

Correspondence

To the Editor

In a recent article discussing "Physical Defects in the Genesis of Juvenile Delinquency," Blumenthal¹ highlights two important points: the effect of physical deformity in producing complexes and behavior problems, and the disquieting effect on children of parental disagreements. To be a bit classical we note that these ideas were well presented by Shakespeare.

Richard III (the hunchback) suffers from an inferiority complex and in a soliloquy bemoans his physical infirmity, thus,

"Why, love, foreswore me in my mother's womb
And, for I should not deal in her soft laws,
She did corrupt frail nature with some bribe,
To shrink mine arm up like a wither'd shrub,
To make an envious mountain on my back,
To shape my legs of an unequal size,
To disproportion me in every part,
Like to a chaos, or an unlick'd bear-whelp
That carries no impression, like the dam."

3rd King Henry VI, III, ii, 153

and then he vows that he will become king and embark on a villainous role to obtain his end.

"But to command, to check, to o'erbear such
As are of better person than myself,

I'll make my heaven to dream upon the crown,
And, whiles I live, to account this world but hell,
Until my mis-shaped trunk that bears this head
Be round impaled with a glorious crown."

Ibid, 166

In order for children to develop properly both mentally and physically, one of the most important requirements is a congenial home environment. This essentially means pleasant and agreeable parental relationship. Any discord between husband and wife is of necessity reflected in the health and happiness of the children. One can only surmise the myriad mental aberrations that obtain in the unfortunate children of divorced parents. Shakespeare depicts the effect of parental disagreements on a child. Leonates who is unjustly jealous of his wife maltreats her. This home maladjustment weighs heavily on their only son, thus,

"He straight declined, droop'd, took it deeply,
Fasten'd and fix'd the shame on 't in himself,
Threw off his spirit, his appetite, his sleep,
And downright languish'd."

Winter's Tale, II, iii, 14.

MICHAEL A. BRESCHIA, M.D.
Woodside, Queens, New York

Symposium on the Surgical Treatment of Goiter

GOITER—INDICATIONS FOR OPERATION

How to Differentiate Toxic Goiter from Conditions Simulating It

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A GENERATION ago, hyperthyroidism without exophthalmos was often unrecognized by physicians. When it was recognized it was treated medically more often than surgically. Operative mortality was high, while the mortality of the disease itself was assumed to be low. Forchheimer in his *System of Therapeutics* said "In my whole experience I have seen only 1 death from this disease and that was due to thyroid feedings." At every medical convention there was a battle royal between surgeons and medical men over the question of whether hyperthyroidism and appendicitis were surgical or medical diseases.

The surgeons won the contest for appendicitis long before they could prove their claim to superior results in the treatment of hyperthyroidism. As the technic of thyroidectomy became standardized, operative mortality was lowered, while the high morbidity and the final high mortality caused by cardiac damage in long-standing cases became more widely appreciated.

The parallelism of thyroid and appendix disease still continues. While it is still true that in both cases the surgeon receives many patients too late, the public is threatened not so much by delayed operations as by operations that are not justified. For that reason it seems worthwhile to consider the diseases that simulate hyperthyroidism before discussing the indications for operation.

Last year Dr. Noehren reported an analysis of 185 cases referred to him with a mistaken diagnosis of goiter. His findings were in accord with the experience of all thyroid surgeons. About two-thirds of the mistaken diagnoses came under the head of anxiety and other neuroses and neurocirculatory asthenia. Organic heart disease and essential hypertension accounted for most of the remainder.

Mild forms of depression which occur in both men and women between the ages of 40 and 60 constitute a danger against which we must always be on guard. If agitation is an accompaniment of the depression, the basal

metabolic rate may rise to +30. The tremor, nervousness, and emotional disturbances are suggestive of hyperthyroidism. If a patient with this syndrome does not improve under iodine treatment, testosterone in men and theelin in women will often act as specifics. Improvement or apparent cure under such treatment is a positive contra-indication to thyroidectomy, even though a thyroid adenoma is present. Operation makes these patients worse, and in some cases suicides have followed within a few months after such mistakes have been made.

Without attempting to classify the neuroses, we may say that the broad picture is one of nervousness, weakness, tachycardia, emotional disturbances, tremors, and either loss of weight or constant underweight. When the sensation of choking (globus hystericus) is added to this picture, it is not surprising that many of these patients come to the surgeon for thyroidectomy. Unfortunately, once the suggestion of goiter has been made, they are eager for operation and are, therefore, easy prey for incompetent or dishonest practitioners. To a commercially minded surgeon they must be irresistible.

In most cases differential diagnosis is not difficult if the following points are kept in mind.

In hyperthyroidism some degree of thyroid enlargement is always present, although sometimes its detection requires skillful palpation.

Thyroid tachycardia is constant, in neurosis it subsides under rest alone.

The skin of thyroid patients is warm and moist, and flushing of the neck and chest frequently appears during the examination, in neurotic patients the hands and feet are usually cold and clammy.

In thyroidism loss of weight occurs in spite of a good appetite, in neurosis the appetite is usually poor.

Patients with hyperthyroidism are usually intolerant of heat. Neurotics are either cold or alternate between sensations of heat and of cold.

The therapeutic test by iodine administration is of value. Few cases of hyperthyroid-

ism fail to show improvement and these are always cases of toxic adenoma where the nodular goiter is easily palpable

Exophthalmos and increased basal metabolic rate point strongly to hyperthyroidism, but neither of them is a positive proof of its existence and their absence, of course, does not disprove it

We must be especially on our guard now that the real World War is getting under way. In the last war, anxiety neuroses were common in the Army. When our public finally awakes to the implications of the present situation, these neuroses will become as common among civilians as they were among our soldiers in the lesser war of 1918.

Time does not permit discussion of organic heart disease and hypertension. Any proper examination should lead to their discovery.

We come now to the indications for thyroid operations. We need waste no time on cases of fully developed hyperthyroidism whether due to toxic adenomas or diffuse hyperplasia or to large nontoxic goiters producing pressure symptoms. In these patients the indication for surgical treatment is no longer debatable.

Difficulty in deciding whether or not to operate arises most often in two classes of cases. First are those patients with slight thyroid enlargement and mildly toxic symptoms. It seems reasonable to believe that many of these patients suffer from functional rather than organic hyperthyroidism. There is often a background of domestic or financial troubles. With correction of the psychic factor, rest, and medication with small doses of iodine and sedatives many of them can be cured without operation. It is true that recurrences are not infrequent, but even when they do occur the patient usually responds again to treatment.

If she is found to be iodine-resistant, operation is indicated before the thyrotoxicosis becomes too great for safe surgical intervention.

The second group comprises older patients with long-standing heart disease whether caused or complicated by toxic hyperplasia, toxic adenoma, or large nontoxic goiter. In these cases fibrillation is often present, and decompensation is shown by edema, dyspnea, and cyanosis. They are obviously poor surgical risks. Nevertheless, some of these bad risk cases, even though the thyroid factor seems debatable, in my experience have yielded the most brilliant results. Whether it is the toxic effect or the added load on the heart caused by pressure is difficult to say. The fact remains that many cardiac patients who are bedridden, who are no longer responding to any medical treatment, and whose fibrillation is constant and refractory may be restored to usefulness by a carefully performed thyroidectomy, carried out in one or more stages as indicated by the reactions observed during the operation.

One other group worth mentioning because it is not generally referred to in textbooks is that of paroxysmal tachycardia. They are not often seen but, when recognized, operation gives dramatic results. We have had about 6 such cases. None of them were extremely toxic, and the first case had no toxic symptoms whatever. In all of them an adenoma of the left lower pole extended well into the thorax, and in all of them the attacks were permanently eliminated. Whether they were due to mechanical irritation of the vagus, as I suspect, or to intermittent hyperactivity of the adenoma, which I doubt, the fact remains that in every case of paroxysmal tachycardia this etiology is worth considering.

THE PREOPERATIVE AND POSTOPERATIVE USE OF IODINE IN HYPERTHYROIDISM

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THE subject of the use of iodine in hyperthyroidism may appear hackneyed to many and unworthy of further discussion. However, a few points may be reviewed at this time, in addition to calling attention to some clinical

experiences that possibly have not been sufficiently emphasized.

In the past there has been some difference of opinion as to the response to iodine obtained in the various forms of hyperthyroidism. Clinical experience has established the fact that iodine is as effective in secondary hyperthyroidism (toxic nodular or adenomatous goiter) as it is in primary hyper-

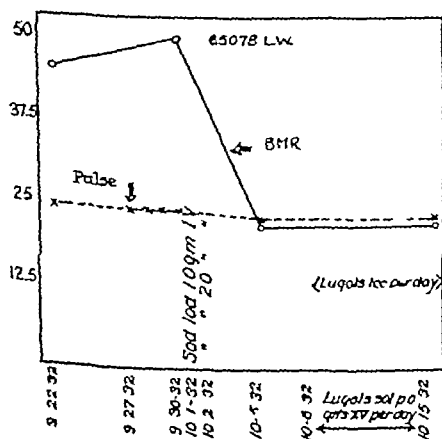
Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, May 1, 1941.
From the Department of Surgery, University of Rochester School of Medicine and Dentistry.

CHART I

THE FIRST FIVE CASES ARE OF THE DIFFUSE TYPE OF GOITER THE REMAINDER ARE CASES OF NODULAR GOITER THERE IS NO ESSENTIAL DIFFERENCE IN THE REACTION TO IODINE IN THE TWO GROUPS OF CASES

Case Number	Age	Sex	Pre-iodine		Amount Iodine Intravenous		Post-iodine		Per Cent Decrease, B.M.R.	Time, Days
			B.M.R.	Pulse	Doses	Total, Gms.	B.M.R.	Pulse		
77004	47	F	39	120	3	4	10	106	74	3
88909	52	F	48	90	3	2 5	22	78	54	4
78789	24	F	21	90	2	3	6	70	71	3
83957	34	F	60	118	2	3	34	118	43	2
83957 (2nd adm.)	34	F	32	120	2	3	14	115	56	5
72529	49	F	39	90	3	4	17	90	56	4
24181	27	F	45	96	2	2 6	29	80	35	3
59980	38	F	27	105	2	3	11	94	60	3
95219	42	F	34	90	2	4	17	80	50	4
73820	14	F	44	100	2	2	10	100	79	3
92699	50	F	56	110	2	3	30	95	46	3
85699	53	F	66	106	2	3	38	100	42	3
60863	27	F	43	100	1	2 5	13	90	70	3
57007	31	F	43	100	2	3	9	80	79	6
94236	42	F	52	100	2	3	24	100	54	4
84738	44	F	49	116	2	3	26	100	47	2
89592	46	E	83	110	2	3	44	80	46	2
67904	56	M	25	100	2	2	8	90	68	3
65078	25	F	50	100	2	3	21	84	58	4
76455	70	M	72	100	2	3	39	100	46	3
Average	40		46.4		2.1	2.98	21.1		54.5	3.3

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FIG 1

thyroidism (exophthalmic goiter) The majority of cases of toxic goiter seen in our clinic are of the nodular type. It has been our observation that they react to iodine in the same way, and to the same degree, as do the cases

of diffuse toxic or exophthalmic goiter. We feel that there is no essential difference between the two types of cases and that the differences in symptoms commonly seen are often attributable to the differences in ages at which the disease develops.

Lugol's solution is the most popular iodine preparation used, although other compounds such as potassium or sodium iodide have been shown to be equally effective in producing a remission. That the usual doses given, 10 to 30 minims daily, are far in excess of the amount of iodine required to produce a remission has been shown by Thompson, *et al*, who secured a satisfactory response using 1 minim of compound solution of iodine by mouth daily.¹ The greater part of the iodine given in these larger doses is lost to the body by excretion in the urine. It is not known whether iodine in the circulation, other than that bound by the thyroid, exerts any beneficial effect on the toxic symptoms. It has been suggested that under these circumstances a temporary absorption by the thyroid gland may occur with some benefit.² In our experience we have

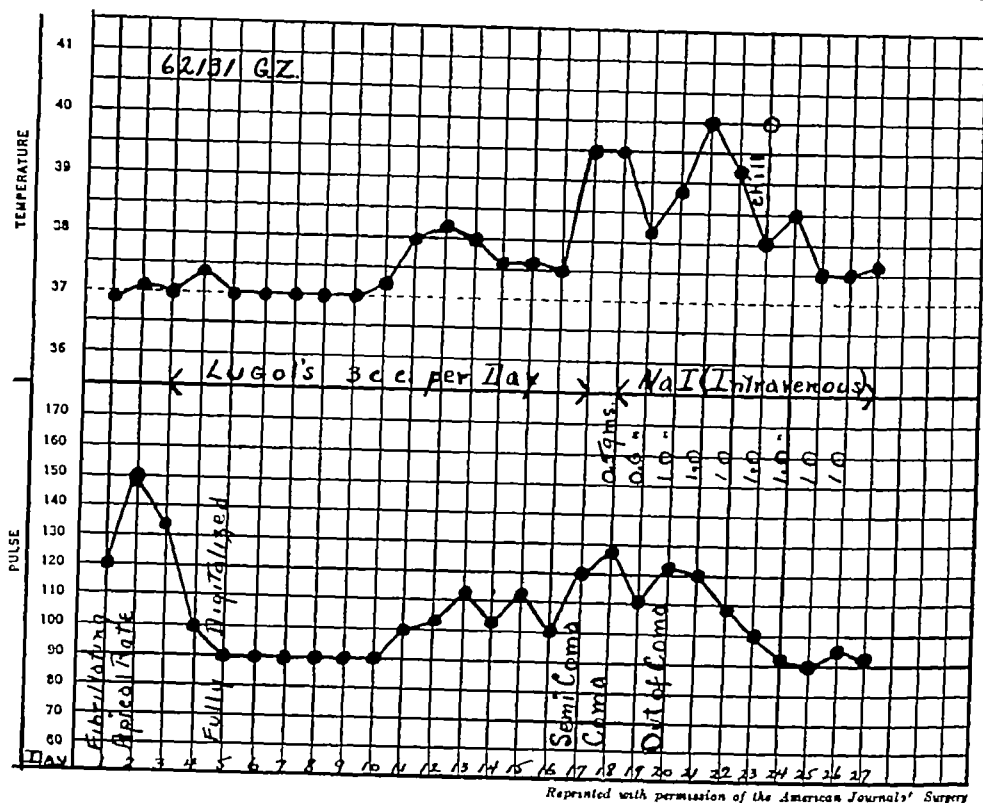


FIG 2

never noted any untoward symptoms from the use of excessively large amounts of iodine other than the development of a rash, an occasional instance of pain in the jaw, and salivation. We have never seen the deleterious effects described by Barker,³ although we have given daily as much as 1 to 3 Gm. of sodium iodide intravenously over a period of several days in some cases. Since there may be some virtue in supplying an excess of iodine, it would appear advisable to continue using the larger doses.

Brief references have appeared in the literature regarding the use of iodine intravenously, but such parenteral administration has not received the emphasis it deserves. In a previous communication⁴ we reported some of our experiences with large doses of sodium iodide given intravenously and, while intravenous iodine is not advocated as a routine procedure, certain observations and advantages might be re-emphasized. We found that in the majority of cases of hyperthyroidism a satisfactory iodine remission could be obtained within a period of three to four days by giving a total of 30 Gm. of sodium iodide intravenously.

Within this period of time subjective improvement was often noted by the patient. Objectively, there was also improvement, the basal metabolic rate decreasing an average of 54.5 per cent. Twenty cases so treated are shown in Chart I. It will be seen that the cases are representative as to age, type, and degree of toxicity. Furthermore, the remission in most instances was complete, additional iodine failing to produce any further decrease in the basal metabolic rate (Fig. 1). It would appear from these observations that excessive amounts of iodine intravenously are of some value when a rapid remission and decrease in toxicity are necessary.

It should be emphasized that intravenous iodine, with the attendant rapid response, is not advocated to the exclusion of the usual preoperative preparation of rest in bed and other general medical measures. Rather is it suggested that by obtaining such a rapid iodine response quickly and early in the course of treatment one can expect greater benefit from the other forms of preoperative treatment.

This method of iodine administration also

seemed to be of value in some cases that were refractory to oral administration. We often obtained a satisfactory response in these patients, although on the average the improvement was not so marked as in the cases mentioned above. However, the possibilities of intravenous administration should be borne in mind when one is treating a patient who appears to be "iodine-fast."

We have seen a number of patients in an impending or a fully developed "thyroid storm" and, while it is extremely difficult to evaluate accurately each therapeutic measure used, we have the distinct impression that the repeated intravenous administration of sodium iodide in such patients has been responsible for overcoming this most disastrous of all thyroid complications in many instances. We have given 10 Gm. of sodium iodide as often as three times per day and have observed no ill effects. In the patient whose course is shown in Fig. 2, a maximum dose of 10 Gm. per day was used. This patient appeared to be "iodine-fast," since there was no diminution in the basal metabolic rate after thirteen days of Lugol's solution by mouth. In fact, on the thirteenth day it appeared that a "storm" was impending, and on the fourteenth day it was obviously fully developed. By the time 30 Gm. of sodium iodide had been given intravenously the patient was out of coma and obviously improving clinically, although the improvement was not immediately apparent on her chart. Her recovery continued satisfactorily thereafter.

Since using this type of treatment, we have been more successful in handling such cases

than formerly. Since other therapeutic measures employed were essentially the same, it would seem reasonable to attribute any improvements in results to the iodine given. We urge its use in such cases, particularly as no untoward effects have been observed.

The question of how long after operation iodine should be continued is, as far as I know, a matter of conjecture and personal opinion. We usually gave small amounts, 2 to 5 minims, of Lugol's solution per day during the period of hospitalization. It has been our custom to continue iodine, 1 minim per day, over a period of some two months. The only rationale for its use is the observation of Halsted that the administration of small amounts of iodine in dogs prevented regeneration of normal thyroid tissue remaining after subtotal resection of the gland. Whether or not it prevents the regeneration of hyperplastic thyroid tissue is not known.

Any discussion of iodine therapy would not be complete without emphasizing the point that the surgeon should be given the opportunity to examine the patient before iodine is given. One cannot accurately appraise the severity of the toxicity after a remission has been obtained, and a surgeon seeing a patient for the first time under such circumstances is at a distinct disadvantage.

References

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THYROIDECTOMY—TECHNIC

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THE prime requisite of any surgical technic is safety. In no operative procedure is this more important than in that of thyroidectomy. Two most important pitfalls are to be avoided, viz., injury to recurrent laryngeal nerves and hemorrhage. Hemorrhage may be immediate, at the time of operation, or later—after the patient has returned to his room. Another factor to be considered is the amount

of tissue removed during the operation, a consideration that is rather empiric yet demands clean-cut surgery lest only a shaving-off result ensues.

Every surgeon develops a technic that fits his abilities, without question this is always a combination of methods that have been taught since Kocher's time. It would, therefore, be impertinent for anyone to say that this or that complete technic was entirely of his own devising. It is, however, equally true that small portions of a technic, elaborated by an individual by trial-and-error methods, may

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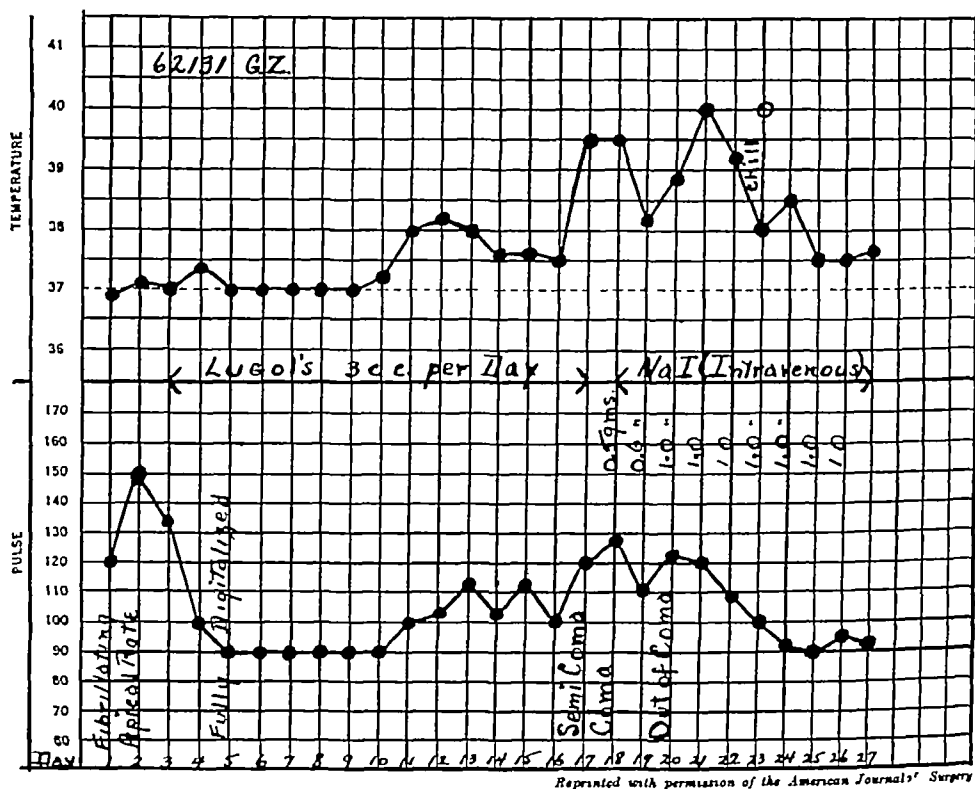


FIG 2

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lateral side of the gland than have been injured by delivering the gland much as E. P. Sloan said, the head is delivered by a pair of low forceps. There is no particular pull or tension exerted on the nerve by this maneuver. The right hand holds the forceps previously mentioned, and another, placed at the junction of the lower and middle thirds of the lobe, exerting a pull toward the midline while the finger tips of the left hand gradually work behind the gland toward the trachea. The posterior surface of the gland may then be seen and, what is more important, felt. It is at this point that the technic here described differs from those that I have seen—from this point on the sense of touch of the left hand directs the lobectomy. Both holding-forceps—more if necessary—can be held between the thumb and index finger while the remaining fingers are behind the gland. This maneuver not only detects nodules, which may be either adenomas or parathyroid glands, but it also gives evidence of the absence of the threadlike recurrent laryngeal nerve. It must be remembered that the sense of touch is much more accurate than sight when it comes to identifying deep lying nerves. Those who have operated on trunks of the sympathetic nervous system, or on the phrenic nerve, will readily testify to this fact, once having found how much simpler it is to feel first and see afterward. A fine piece of silk laid along the posterior surface of the gland will prove this to the doubter. Having determined that the fingers are as far medially as it is possible to go behind the gland, hemostats are then placed in a lateralward direction, from upper lobe downward to isthmus, biting into isthmus (thus leaving only small tufts of it on the tracheal surface) and encircling the lower pole. The hemostats along the lower pole are placed so that the tips point superficially, this is an added safeguard against injury to the recurrent laryngeal nerve. To point them backward during application is dangerous from this point of view. As each clamp is placed the tissue is cut with a knife. With practice, as much or as little may be left as is desired, the tips of the fingers behind being the guide to the forceps in front. In other words, this is largely a sense-of-touch technic. In this manner one may safely skim closer to the posterior envelope than it is possible to do by any sight method. Having completed the dissection on one side, all points are ligated with No. 00 chromic catgut. I have a so-called catgut detail man to thank for my having changed to a fine chromic catgut. Being assured by

him that this suture would practically eliminate the serum found so often when plain catgut is used and finding silk not so easy to handle as catgut, I have been agreeably surprised to find that the chromic suture equals the silk with respect to the lack of postoperative serum.

Superior Thyroid Arteries

These arteries are now handled by placing around them, on a round pointed needle, a suture of No. 00 chromic catgut, doubled, and tied once above the upper superior pole clamp and then, having thrown both clamps upward, tied below them, removing both clamps after the first lower knot is tied. This suture is then carried downward, closing over the surface of the gland. This suture not only doubly insures hemostasis but it also destroys tissue caught in its succeeding bights—of no little value in an extremely hyperplastic gland. The suture is run down the gland remnant and then back up again, and the two ends are tied onto the superior thyroid artery. When placing the needle under the superior pole, the fingers of the left hand press back the main vessels of the neck. The opposite lobe is dealt with in the same manner, assuring hemostasis.

At this point the anesthetist (employing cyclopropane anesthesia in most cases) allows the patient to "come out," cough, speak, gag, and in any way possible induce an increase in intrathoracic pressure, the purpose, of course, being to uncover potential bleeders. Saline solution, always at hand in case inadvertent damage to a vein requires its being poured into the wound to avoid an air embolism, is now poured into the wound to wash out clots that might later blow out. Hemostasis having thus been assured, the muscles are brought together.

Muscle Suture

After the upper portion of the sternohyoid has been brought together with No. 00 chromic catgut, the midportion of this muscle is lifted, and the sternothyroid muscle is pulled forward from the laterally receded position it has assumed. This is an important step in that this muscle, brought back to the midline, covers the trachea and prevents the swallowing-tug due to adherence of the trachea to the more superficial tissues.

Drainage

Four strands of silk are now laid across the wound, a split-shot is clamped on either end

perhaps be claimed as his contribution to the general advancement of surgery. With this understanding the following method of thyroidectomy is here presented, with reasons for each step described.

The Skin Incision

This is made with a firm sweep of the knife which carries down to the superficial layer of the deep fascia of the neck. It is made somewhat more than two fingers breadth above the suprasternal notch, determined by laying the middle finger along the upper border of the notch with the index finger above it. The incision goes straight across rather than forming a downward convexity as was formerly, and still is, practiced by some. In thyroidectomy the head is usually tilted backward, thus, if the incision is not made higher than usually seems proper, an unsightly scar running across the upper border of the clavicles results. The scar is the only thing about which the patient may brag after the operation, and surgeons have been known to admire a hair-line scarcely visible at three feet.

Reflecting the Skin

Having reached the proper plane, that between the superficial fascia and the superficial layer of the deep fascia, one need but begin the skin reflection with the knife. It is then possible to push back both the upper and lower flaps with a piece of gauze over the index finger of the dissecting hand, a thumb forceps holding the flap as it is separated from the underlying deep fascia. There is a distinct advantage in this maneuver in that small hemorrhages are avoided inasmuch as the large veins lie deep to the deep fascia, while the many small vessels in the superficial fascia seldom communicate with the deeper ones. We therefore have a practically hemorrhage-free plane if we start the dissection properly. This is a time-saving technic.

Opening the Neck

With Robert Emmett Farr spring retractors in place, the deep fascia and underlying pretracheal muscles are separated in the medial line, longitudinally, of course, and avoiding the anterior jugular veins. Having reached the surface of the gland, the index fingers of the operator and first assistant are placed underneath the muscles and the neck is opened in the same manner as the peritoneum is opened in an abdominal incision—viz, by lifting toward the ceiling, thus avoiding injury to underlying structures. With care it is often possible

to note the presence of the communicating branch between the two anterior jugular veins at the level of the suprasternal notch. This is an inconstant vein yet, if seen, should be tied immediately. This incision should never be skimped. Room makes for better surgery.

Cleaning Surface of Lobe

The handle of the knife is now insinuated between the surface of the lobe and the sternothyroid muscle and the muscle is freed from the gland. A fenestrated, curved retractor is placed under the upper angle of the muscles and held by the second assistant on the operator's left. This maneuver should partially expose the superior pole. It is at this point that I have seen the beginning of a sloppy thyroidectomy caused by the failure to recognize the presence of muscle fibers of the sternothyroid still sticking to the gland. This has prevented visualization of the gland surface, so many technics still depend on visualization—a matter to be taken up later. It is at this point, therefore, that the operator must make certain that no muscle fibers remain on the gland, a condition so frequently observed when thyroiditis has been present. The fibers are easily scraped off the gland with the edge of the knife, being then caught up by the retractor with the rest of the muscle bundle.

Middle Thyroid Veins

At this point of the dissection it is likely that veins may be seen coursing laterally from the midportion of the lobe. These are to be double clamped and tied at once, for, if torn, a troublesome hemorrhage and time-consuming hemostatic effort ensue. It is well to care for these veins immediately at any time that they are seen.

Delivery of Lobe

After being certain that muscle and often areolar tissue (particularly on the lower portion of the lobe) have been cleaned off, the gland is grasped by its upper third with a pair of toothed forceps with a lock handle (there are several varieties) which do not tear through the gland tissue. A downward pull is made to expose the superior pole and two Stille-hemostats are applied, crushing the uppermost portion of the pole between them. The knife then cuts through the pole below the lowermost clamp and, thus, the lobe is made ready for delivery. It has been my feeling for a long time that more recurrent laryngeal nerves are damaged by blindly, or without sense of touch, placing clamps from either the medial or

rule The entire upper pole of the gland should be exposed by reason of the fact that there are frequently several branches of the artery and vein supplying the upper pole Seven such vessels were found in 1 case In bad risk cases that react seriously, a second ligation is safer These very seriously ill patients are best sent to their homes for two to four months' rest in bed and general care before undertaking even unilateral excision

With patients apparently in not so serious a condition, the regular collar incision may be made If alarming symptoms develop, the superior thyroid artery may be ligated under the flap and three or four temporary sutures inserted If postoperative progress is satisfactory, it is sometimes possible to reopen the wound and to go on with the unilateral excision within five or ten days Rarely is it possible to do a partial bilateral excision When the condition is so serious as to demand unilateral excision, excision of the remaining lobe may be undertaken from three to six months later, depending on the rapidity and degree of improvement At almost any stage in the operation if alarming symptoms develop, operation should not be continued further, but closure should be made with temporary stitches inserted The incision is usually best reopened in from five to ten days, the edges of the flap trimmed and a careful

closure carried out with sutures of the platysma muscle, and careful skin closure done for which we usually use fine black silk In cases of the worst possible risks we have ligated each superior thyroid artery at separate operations at an interval of a week through direct incision (first and second stages), then we have undertaken the excision of one lobe with temporary closure (third stage), and a second trip to the operating room is made to trim the flaps and make a satisfactory permanent closure (fourth stage) The second unilateral excision (fifth stage) almost always has to follow, with another secondary closure (sixth stage)

The patients requiring such intervention are those having extreme toxemia, a badly damaged heart, extremely high blood pressure, in a few instances, extremely large or deeply located goiters, particularly those in which the rings of the trachea have been softened by prolonged pressure so that there is great difficulty in breathing, and, occasionally, in case of malignancy.

In conclusion, with desperate risk goiters (1) do the least possible surgery that offers the patient benefit, (2) make the operating time short, but not at the sacrifice of accuracy and gentle manipulation, and (3) avoid long and extensive procedures—this is highly important

ANESTHESIA IN GOITER SURGERY

OSCAR HAYEN STOVER, M D, Buffalo, New York

NOT so many years ago the choice of a general anesthetic for any particular procedure was rather an easy one It was easy because there was so little choice The patient was, so to speak, molded to fit the anesthetic pattern Today, with a wide choice of general anesthetic agents and the help of various premedicants, the anesthetic is planned so as to suit the patient's pathology The statement that, "one uses this, or that, anesthetic routinely," seems to me to be as much out of our past as is the horse and buggy

Only a few years ago it was the surgeon who, alone, made whatever choice was made in regard to anesthetics Today, due to the development of the science of anesthesiology and, along with it, a trained personnel of

anesthesiologists almost everywhere available, this situation has changed Surgeon and anesthetist together decide on the type of anesthetic most suitable for the patient However, it must be borne in mind that a patient is only having an anesthetic because he must for some reason be operated upon The anesthetic, therefore, must be one that permits the surgeon to do the necessary surgery with the greatest possible ease. On the other hand, the anesthetic must accomplish this with the least amount of physiologic upset to the patient To bring about this balance between the patient on the one hand and the necessary surgical procedure on the other hand is often difficult Sacrificing of operative convenience may be necessary for the immediate good of the patient No operation, or no anesthetic either for that matter, is successful unless the patient lives

(Roeder, C. A.), and the skin is approximated with small Michel clips

The drainage strands are removed at the end of twenty-four hours, the clips, on the third postoperative day

The foregoing describes a typical thyroidec-tomy without complications. It is a safe technic in my hands. There are, of course, exigencies in which it must be altered. For example, a large gland might demand that the prethyroid muscles be cut transversely, there should never be any hesitancy about doing this. Plenty of room—as much room as possible—is demanded in any operation in which danger constantly lurks.

The technic of handling intrathoracic goiters is not gone into, this being a subject by itself. "For thrills in surgery," says André Crotti, "limit your work to the removal of intra-thoracic goiters."

Neither has this discussion taken up the matter of the amount of gland substance to be

removed, that is a matter of judgment which can be acquired by practice and reading. There can be no excuse, however, for merely shaving off the surface of the gland and leaving three-fourths of a lobe behind. Thyroidec-tomy at its best is but a crude method for the treatment of goiter, but it does require of those who attempt it that they perfect themselves in technic.

To the following, whose work I have observed over a long period of years, who have always been an inspiration to me, and who have made it possible that the foregoing was written at all, go my thanks.

Pemberton (hemostatic suture), Crotti (time-saving methods), Sloan (delivery of gland), Dinsmore (forward-pointing clamps at lower pole), Arnold Jackson (handy saline), Crile (nicety of technic), and to many others whose additions rest in one's subconscious mind yet direct the fingers when the need arises.

514 Medical Arts Building

MANY-STAGE OPERATION FOR GOITER

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ALL surgeons familiar with the care of a desperate risk goiter cases realize that operation, even after considerable preliminary care and medication, is attended by almost prohibitive risk. It is generally conceded that all desperate patients usually should be kept on preliminary rest and care for weeks or, in some instances, months before attempting even slight surgical intervention. Kocher, of Bern, reduced this risk by preliminary ligation many years ago. At a meeting of the Section on Surgery of the American Medical Association in 1912, one of us (M. B. T.) proposed the many-stage operation, adding to ligation the unilateral excision of one lobe, packing the wound temporarily, and making a secondary closure—this procedure being followed on both sides if necessary. Fortunately, it is not essential that all be finished at one stage as in many operations of major surgery. Reduction to a minimum of time on the operating table makes it possible to operate successfully in some apparently inoperable cases.

This reduces the mortality to a fraction of 1 per cent and gives satisfactory permanent results for a number of such patients.

The number of short operative stages we have used has been as many as six in certain extremely bad cases, some of these patients were admitted to the hospital on three different occasions. One patient whose basal metabolic rate could not be taken lower than +120 is now in relatively good health and working his farm near Ithaca. The laboratory tests were made under the supervision of Dr. Barton Hauenstein, now teaching at Buffalo University Medical College. Another patient with a serious heart lesion, and almost as toxic, has been in fairly good health for over a year and bids fair to improve still further. The combination of stages varies under different conditions.

Kocher's ligation of the superior pole through incision directly over the artery is the simplest and safest procedure. A triangle is formed with the base upward by the hyoid bone above, the sternomastoid behind, and the sternohyoid muscle in front. The sternomastoid has to be retracted backward as a

vantage of being controllable with regard to the depth of the anesthesia. Sometimes, when the surgeon works close to the recurrent laryngeal nerve, the anesthesia is lightened and the patient becomes conscious and is made to talk. This gives some indication as to whether there has been any injury to the nerve (Noehren⁴). After this test is made the patient is again carried to a deeper level of anesthesia. On awakening, the patient has no recollection of this test. Nitrous oxide-oxygen is also nonexplosive, and this is a factor where electrosurgery is to be carried out. It must not be forgotten, however, that addition of any ether to this mixture makes it explosive. With this anesthetic patients recover quickly and there is less nausea than with any other general inhalation anesthetic.

The chief disadvantage of nitrous oxide is the fact that it is given with a low percentage of oxygen. This anesthetic is often, though not always, associated with an anoxemia in varying degrees. The anoxemia is theoretically more dangerous than it is practically more dangerous. This is definitely borne out by the thousands of these anesthetics administered each year without difficulty. Because we have a choice, I believe that thyrocardiac patients, thyroid patients with obstruction, or patients suffering from any cardiac decompensation should be given general inhalation anesthetics where anesthesia is associated with higher oxygen concentration, contraindicating the use of nitrous oxide-oxygen.

Ethylene is an excellent anesthetic for thyroid surgery. It has a rapid induction and a short recovery period. It is given with considerable oxygen and ordinarily there is no associated anoxemia. Postoperative nausea is greater than with nitrous oxide, and the anesthesia produced is satisfactory. Mixtures of ethylene with oxygen or air are explosive, and this should be kept in mind, making its use contraindicated where electrosurgery is contemplated. Because I believe that there is nothing that ethylene will do that cyclopropane will not do better, I have not had occasion to use ethylene for quite some time.

Cyclopropane is my choice of a general inhalation anesthetic in thyroid surgery where a high oxygen concentration is beneficial to the patient. Because the administration of cyclopropane is so satisfactory from the anesthesiologist's personal point of view, I feel that we many times use it when nitrous oxide would be of advantage. The high concentration of oxygen, the extreme controllability, the rapid

induction, the short waking time and, usually, the satisfactory type of anesthesia are the outstanding advantages of cyclopropane. In thyroid patients suffering from dyspnea due to obstruction, the high oxygen concentration is of definite value. Many of these patients who have a poor color before the anesthetic will have an excellent color under the anesthetic. The anesthesia can also be carried to a sufficiently deep plane so that an intratracheal catheter may be passed should the occasion arise.

I do not believe in the routine use of intratracheal catheters in cases of tracheal obstruction or suspected obstruction. The passing of the intratracheal tube is not without danger, and the patient should not needlessly be subjected to this extra risk. The dangers are physical trauma, associated with the passage of the tube, and also the introduction of infection from the nose or pharynx directly into the trachea. It is well always to remember the fact that where cyclopropane or any other combustible anesthetic is used the use of electrically lighted instruments in the oral cavity is not without risk. Five anesthetic combustions, resulting in the death of 1 patient and a serious injury to another, have recently been reported (Greene⁶). A laryngoscope and appropriate catheters, etc., should, however, be immediately available should the necessity for their use arise. I have administered anesthetics to more than 1,000 consecutive thyroid cases of Dr. Noehren's without using intratracheal intubation.

Ordinarily, thyrocardiac patients do well under cyclopropane anesthesia but, occasionally, auricular fibrillation will take place. This can sometimes be controlled by lightening the plane of anesthesia, but, if this is not possible, the anesthetic plan can be changed and the patient switched to nitrous oxide-oxygen, with or without adding ether. The disadvantages of cyclopropane in thyroid surgery are the occasional association of auricular fibrillation, the increased postoperative nausea as compared to nitrous oxide, and its explosiveness. The explosion range of cyclopropane can be materially shortened, if not altogether eliminated, by the proper use of helium in the anesthetic mixture (Jones and Thomas⁷).

Some advocate the use of *aerlin* in thyroid surgery, particularly in the toxic thyroid patients. Here, however, it is not used as an anesthetic but as a powerful hypnotic, it being necessary to administer an anesthetic to the patient prior to his being operated upon. It is true that because the patient goes

In no other operative field is the full cooperation of surgeon and anesthetist more necessary than in that of thyroid surgery. This cooperation should not be one for merely the time that the patient is on the operating table. It should be a cooperative venture from the beginning of hospitalization until the patient is well along in convalescence. It is true that in nontoxic goiters without obstructive symptoms the anesthetic is no particular problem. However, as the surgeon gains experience through seeing many cases so, too, does the anesthetist. The value of the judgment of the anesthetist is also in direct proportion to the number of thyroid cases of all kinds which he has an opportunity to see and study. The anesthetist's duty is not merely to keep the patient alive during the period that he is in surgery, for this is only shortsightedness, but his judgment must be influenced not only by events of the present but by reactions that may follow postoperatively. He must be so familiar with the patient that should unfavorable signs develop during the course of the anesthetic he will recognize them as such and suggest termination of the operation, or, perhaps not even start it. In order that the anesthetist's judgment be tempered by experience, he must note the postoperative response of all of his thyroid cases.

With regard to thyroid anesthetic agents, the literature gives ample evidence of the fact that ether, nitrous oxide, ethylene, cyclopropane, avertin, various types of local anesthesia, and combinations of local and general have all been successfully used in thyroid surgery. Each of these agents have advantages and disadvantages over each of the others. The choice of an anesthetic should be on a pharmacologic basis in an attempt to adjust the anesthetic to the patient's pathology and the operative procedure contemplated.

A good anesthetic presupposes proper preanesthetic medication and preanesthetic treatment. First and foremost is a personal contact between patient and anesthetist. The patient must have confidence in the person who is to put her to sleep. Much of the patient's fear of the operation is, in reality, fear of the anesthetic. Good anesthetist-patient relationship does much to minimize this fear.

Sedatives are often given thyroid patients from the beginning of their hospitalization but should always be given in fairly good doses the evening before the operation and the following morning. Such drugs as phenobarbital, sodium amytal, nembutal, and sodium bromide are useful in proper dosage. Where

barbiturates are not tolerated a bromide preparation may be used. There are those who use paraldehyde as a hypnotic. Its use may increase the incidence of pneumonia (Crile and Adams¹), due to the fact that it is largely excreted through the lungs. Besides, I believe a hypodermic of morphine sulfate and atropine sulfate about forty minutes prior to the operation should be used. Morphine further depresses metabolism, and atropine dries the secretion of mucus and saliva. Scopolamine may be substituted for atropine but may cause unpleasant cerebral stimulation. Oversedation may mask inherent toxicity (Cole and Brunner²). This is another reason why the anesthetist must be familiar with the patient.

Thyroid surgery is best performed early in the morning, particularly in the toxic patient, obviating the necessity of a long period of waiting. The patient's room should be dark and quiet so that the mental state will be as calm as possible. The trip to the operating room should be made quickly, with the eyes covered with a loose fitting towel. A portable operating table taken to the patient's room necessitates only one move from bed to table. On arriving in surgery there should be no delays, and the patient should immediately be taken into the operating room and the anesthetic started at once. Operating room and personnel should be absolutely quiet until patient has lost consciousness.

Ether, alone, has no place in modern thyroid anesthesia where other anesthetics are available. It is irritating to the mucous membrane of the trachea, and its use increases the incidence of tracheitis following thyroidectomy. Ether has a too long and unpleasant stage of induction adding to the psychic trauma of the patient. Small amounts of ether are sometimes used without deleterious effect with nitrous oxide, ethylene, and cyclopropane to bring the patient to a suitable stage of anesthesia. It has been shown (Rosenthal and Bourne³) that ether produces a mild, transient impairment of liver function. Where used in small amounts, however, this is not a factor. Where an anesthetic is to be administered by inexperienced hands, however, ether is the choice.

Nitrous oxide-oxygen is an excellent anesthetic for thyroid patients. Inasmuch, as these patients are ordinarily well premedicated and since the operation requires no great amount of relaxation, nitrous oxide is usually sufficient unto itself. Small amounts of ether may be added without harm. It has the ad-

attention to every detail, especially toward the prevention of complications

Formerly, many patients died from so-called thyroid crisis, today, this alarming condition is only rarely seen and then usually in patients who have been the unfortunate victims of an attempt to cure hyperthyroidism by the administration of iodine. Such patients demand the utmost skill and attention to ensure a successful result. Prolonged preoperative treatment—including bed rest, a high calorie diet, a high fluid intake, vitamin preparations, and suitable sedatives—is an important general measure. Compound solution of iodine is the specific preoperative treatment of choice and is preferably given by mouth. Intravenous sodium iodide is helpful in the preparation of difficult cases. Reassurance and psychotherapy are important aids in overcoming fear and apprehension. Prevention of infections of the upper part of the respiratory tract and proper attention to oral hygiene are beneficial. The fluid intake may be easily supplemented by intravenous glucose and, in selected cases, by blood transfusion.

The selection of the type of operation, single- or multiple-stage, is most important to these critically ill patients. The decision should be based upon the condition of the patient at the time of admission to the hospital and should rarely be changed by the improvement achieved by preoperative care. The use of multiple-stage operations has indeed been a factor in lowering the mortality from thyroid surgery, but in our experience less than 5 per cent of the cases actually demand this type of operative procedure. In spite of this low incidence of two-stage thyroidectomies our mortality rate has been 0.85 per cent. We feel that a more careful study of each patient, together with better preoperative care, has enabled us to attain this result without too frequently resorting to multiple operations.

The most valuable postoperative therapeutic agents are morphine and intravenous glucose. Coller and his associate¹ have amply demonstrated the enormous fluid requirement of patients with hyperthyroidism and, when the throat is sore and swallowing difficult, intravenous administration of glucose solutions is the most satisfactory way of maintaining an adequate fluid intake. A few cases may require the addition of blood transfusion. Morphine in doses large enough to relieve pain and prevent restlessness is as important as proper fluid intake. It should be

remembered that hyperthyroidism increases the tolerance to morphine, and larger or more frequent doses are required to produce a full effect. Patients with a psychosis may respond better to a paraldehyde than to morphine.

Oxygen therapy has been proved a valuable aid in the treatment of the critically ill thyroid patient. Since hyperthyroidism greatly increases the need for oxygen and since anoxia cannot be detected in its early stages, we feel that the postoperative administration of this agent should be made a routine procedure for all bad risk patients.

Ice, either as individual ice caps or as an ice pack, may be necessary to control the extreme hyperthermia that is sometimes seen. Acetyl salicylic acid is also helpful in reducing fever.

In our experience, iodine therapy in the postoperative period is not necessary in the diffuse toxic goiter patient if an adequate subtotal thyroidectomy has been done. In the interval between multiple-stage operations it is our practice to continue its use. This confirms the views recently expressed by Davison and Arnes.²

In elderly patients, arteriosclerotic or hypertensive cardiovascular disease may complicate the goiter problem. The standard measures to combat cardiac decompensation are indicated to overcome this additional hazard. Often, mild degrees of decompensation will respond to the treatment of the goiter problem alone. Auricular fibrillation is not a contraindication to thyroidectomy. Sometimes this annoying complication appears for the first time in the postoperative period, and quinidine has been suggested as the treatment of choice. Our experience favors waiting until late in the convalescent period before employing this drug.

More careful attention to oral hygiene in the preoperative period and refusal to operate upon a patient too soon after recovery from an acute infection of the upper part of the respiratory tract will help prevent postoperative pneumonia. When actually present, the treatment of this complication is the same as for the disease when it occurs without the added handicap of thyroidectomy. Judicious selection of serum, chemotherapy, or both will prevent a fatal outcome in a high percentage of the cases. Early recognition of atelectasis and immediate bronchoscopic aspiration of the mucous plug will prevent the development of pneumonia in the areas of the collapsed lung.

Complications strictly the result of surgery are rare in the experience of those surgeons

to sleep in bed and because he is unconscious on his trip to surgery he is spared a great deal of psychic trauma. From this point of view it is desirable. A patient's inherent toxicity, however, must not be underrated and, if the trip to the operating room causes him to react unduly, I believe it is better to recognize this before the operation than unsuspectingly proceed with the anesthetic and face the consequences postoperatively. *Avertin* masks this reaction completely. It is well to remember that *avertin*—which is tribromethanol and according to Sollman⁵, has action closely related to chloroform—produces a considerable fall in blood pressure and, since these individuals usually carry a high pressure, this fall is detrimental. With *avertin*, the pulse rate is often slower than it would be under like circumstances with another anesthetic, thus, again tending to mask the true state of affairs. It produces some liver damage and also has a deleterious effect on the kidneys.

Local block anesthetics are successfully used by many surgeons in goiter surgery. In non-toxic thyroid patients and in thyroid patients having no obstruction the use of local anesthesia is satisfactory. I do not feel that even in these cases there is any advantage over a general anesthetic. Their use prolongs the operation. In toxic thyroid patients the extra manipulating necessary to the injection of the anesthetic adds to the psychic trauma. In thyroid patients with obstructive symptoms, general anesthesia is more preferable, giving the surgeon the benefit of increased ease of handling the gland. There is also an opportunity of inserting a tracheal catheter should the occasion arise. The patient has the benefit of an environment high in oxygen and is free from the sensation of choking and difficult

breathing often associated with tracheal pressure and obstruction. After all, local anesthesia is harder on the patient than it is on the surgeon.

A combination of local and general anesthetics is often used. This may be advantageous in some cases, particularly where it may be desirable to wake the patient in the middle of the operation to test the vocal cords. Often, the skin may be incised under general anesthesia and the local injection then made, thus obviating the chance of carrying the infection through the skin with the injecting needle.

Summary

The first essential toward good anesthesia in thyroid patients is full cooperation between surgeon and anesthetist.

Nitrous oxide-oxygen or cyclopropane may both be used to advantage in thyroid surgery, the choice depending upon the patient's oxygen requirements.

Intratracheal intubation should be used in those obstruction cases definitely requiring it but should not be used routinely.

The use of *avertin* in toxic thyroids may mask important symptoms that ordinarily give warning of the possibility of delayed reactions.

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THE TREATMENT OF COMPLICATIONS OF THYROID SURGERY

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THE prevention of complications is the keynote of success in thyroid surgery. The brilliant results now obtained in this field of surgery have been made possible not only by an improved surgical technic but, more particularly, by the careful preoperative preparation of the patient and by the anticipa-

tion of possible complications and suitable measures directed toward their prevention.

From a mortality rate of 40 per cent in pre-antiseptic times, when hemorrhage and sepsis were chiefly responsible for this almost prohibitive death rate, we have seen a gradual drop until, now, all good goiter clinics are able to maintain a mortality rate under 1 per cent. To obtain this result requires the most careful

EXOPHTHALMOS—MODERN VIEWS ON THE CAUSE, TREATMENT, AND PROGNOSIS

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FOR a full century the highly complex phenomenon of exophthalmos, as seen in Grave's disease, has been the object of intensive study without any clear conception of its cause forthcoming. It can be defined as a chronic, progressive, bilateral, rarely unilateral, usually nonsymmetric protrusion of the orbital contents.

The scope of this paper limits the discussion to the exophthalmos of Grave's disease, but in passing it is well to note that the phenomenon is not limited to diseases of the thyroid gland but may be produced experimentally in low phosphorus rickets in rats (by Thompson) and is seen clinically in acromegalia, in the leukemias, in Parkinson's syndrome, in chronic nephritis, and in chronic experimental renal insufficiency. There are other clinical conditions in which it is seen, but in all, as in Grave's disease, it is a late symptom.

In about two-thirds of the cases of primary Grave's disease it occurs below the age of 45 and rarely after the decline of sexual life. If all the cases of thyrotoxicosis are included, it is present in about one-third of the number.

Etiology

Basedow thought it was due to a hypertrophy of the cellular tissues of the orbit, Sattler, W. Krauss, and others, to a venous congestion, Naffziger,² to an enlargement and weakness of the muscles. In addition, an abnormal or normal secretion of the thyroid was presupposed. All of the theories would seem to require a fixed condition in the orbits. However, we know, although Smelser's recent work,³ casts some doubt on these observations, that in the early stages of exophthalmos there is considerable variation in man and in experimental animals and that the condition may disappear after death and under general anesthesia or after section of the cervical sympathetic nerves, thus making these conjectures more or less untenable.

The discovery by H. Muller in 1858 of the smooth muscles of the orbit of mammals and his recognition of the two separate groups, i.e., periorbital and palpebral, further stimu-

lated study of these or like muscles in man and animals. Lid lag (von Graefe's sign) and widening of the palpebral fissures (Stellwag's and Dalrymple's sign) are principally due to increased tone of the palpebral muscles of Muller. It is only the protrusion of the globe in man by the increased tone of the vestigial periorbital muscle that is doubted. In lower animals it is possible, but one must presuppose a weakness in the recti muscles to produce this phenomenon in man.

A vast amount of work has been done experimentally on animals (puberal rabbits) by Grey, by Stockaert on bay ducks, and by Loeb and his coworkers on guinea pigs. Then, in 1932, Marine,¹ Baumann, Spence, and Cipra did extensive work on puberal rabbits.

It was found that daily injections of anterior pituitary extract could produce exophthalmos and that on a diet of alfalfa, hay, and oats, with daily intramuscular injections of 0.1 cc or more of methyl cyanide, exophthalmos was produced when an associated parenchymatous goiter existed but not until the goitrous condition was well advanced. This latter condition was always associated with hypertrophy of the anterior pituitary. Thyroidectomy always hastened the early development of exophthalmos and, when these animals were autopsied, they showed fragments of thyroid tissue still present. From this it would seem that a high-grade thyroid insufficiency but not an athyria is necessary to produce this phenomenon. Marine also found that subtotal thyroidectomy plus injections of anterior pituitary extracts promoted exophthalmos. The obvious conclusion is that it was not the thyroid hormone but rather some secretion of the anterior pituitary, either directly or indirectly, that took a positive part in the production of exophthalmos.

In addition, Marine and his coworkers found that the greatest exophthalmos was produced in the more sexually active males, with the females showing more resistance. Further experiments showed that the germinal epithelium of the testis had little, if anything, to do with the production of exophthalmos but that the interstitial cells were a prominent factor. Considerable work was done with testosterone, dehydroandrosterone and like substances, and also with estrogenic sub-

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whose technic is designed to avoid known hazards. Gentle handling of the tissues by all members of the surgical team will reduce unpleasant postoperative sequelae to a minimum. One of these is edema, which may be controlled by applications of heat when the swelling is mild but which sometimes requires tracheotomy when the edema is laryngeal with respiratory obstruction.

Injury to, or removal of, the parathyroid glands results in parathyroid tetany that may appear any time from a few hours to several weeks after the operation. Fortunately, it is usually mild, is the result of temporary interference of the function of these glands, and frequently disappears before the patient leaves the hospital. Removal or destruction of too many of the parathyroid glands during the operation will result in permanent, chronic parathyroid tetany—a subject too complicated for discussion here. The immediate treatment of tetany includes the use of parathyroid extract and calcium—the former by intramuscular injection and the latter by mouth as the lactate powder or intravenously as the gluconate or chloride.

Although exposure of the recurrent laryngeal nerve has been suggested as a means of avoiding their injury during thyroidectomy, we feel that a technic designed to avoid the nerve will more certainly prevent its injury. A normal vocal cord on one side will usually compensate for a cord paralyzed by injury of its nerve on the other side, but weakness and hoarseness of the voice will persist. When both vocal cords are paralyzed by nerve injury, a permanent tracheotomy may be necessary to assure an adequate airway. Whether or not the function-restoring operation designed by King³ will prove successful in treating these problems remains to be seen. Injury to the superior laryngeal nerve results in excessive mucus production and, because it frequently supplies the interarytenoid muscles, voice changes often follow its injury.

Postoperative hemorrhage sufficient to require opening the neck has occurred only five times in the last 1,000 operations in our clinic.

Adequate and careful hemostasis at the time of operation eliminates this distressing complication that formerly was one of the greatest hazards of thyroid surgery. Similarly, postoperative infection can be eliminated by careful adherence to rigid aseptic principles. The use of drainage material increases the danger of infection, and many times a clean wound has become infected when serum collections are drained. The use of fine catgut or silk, gentle handling of tissues, and complete hemostasis will reduce the production of serum and lessen the danger of infection.

Minor complaints such as headache are easily controlled by mild sedatives or anodynes. Annoying cough and distressing mucus can be relieved by cough mixtures with codeine and by inhalations of plain steam. A high fluid intake, expectorants rather than atropine derivatives, a high humidity with constant temperature in the room help to prevent formation of mucous plugs and favor the expectoration of the tracheal secretions.

Prolonged apnea during the operation may require a tracheotomy to re-establish an adequate airway. Better premedication and careful selection of the anesthetic agent and of the technic of administering this agent will prevent most of the emergency tracheotomies during thyroidectomy. The assistance of a medical anesthetist in these matters is extremely valuable to the thyroid surgeon.

Skillful nursing care by those experienced in treating patients with goiter is important both in the preparation of the patient for operation and in the postoperative period. Constant nursing care by private duty nurses in the postoperative period is a necessity for critically ill patients.

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was given. Considerable improvement has been noted

Surgically, Naffziger's operation, i.e., decompression of the orbit in the extreme advancing type, the so-called malignant type, has been a great boon and shows a high incidence of success. It should, however, be reserved for this type of case and should not be attempted for cosmetic purposes.

The prognosis, on the whole, remains rather poor.

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Summation of the Symposium

Dr. Donald Guthrie, *Sayre, Pennsylvania*—This has been a most valuable symposium on hyperthyroidism—in fact, one of the best I have ever heard—and I wish to congratulate the essayists upon their valuable contributions and the concise way in which they have presented them.

In the time allotted me to summarize the symposium, I should like to emphasize some of the most important points that appealed to me and to add briefly some facts about the disease which I consider important.

Dr. Cotuit did well when he warned about the conditions that might be mistaken for hyperthyroidism and stressed the importance of a careful study of the borderline cases. I agree with him that the majority of mistakes that occur are due to the anxiety and other neuroses and to neurocirculatory asthenia. I further agree with him that these patients are invariably made worse by thyroidectomy. Only careful study and experience will safeguard these patients from operation. His conservatism in treating the neurasthenia patients with mild hyperthyroidism and of withholding operation until the psychic factor has been corrected by suggestion, rest, and iodine and his conservative management of the older patient with long-standing heart disease, whether caused or complicated by toxic hyperplasia, are both excellent plans.

I have had no experience with the intravenous use of iodine for preoperative preparation and for treating postoperative reactions which Dr. Jones advocates, but his results are convincing and I mean to employ it in selected cases. He was wise to warn, however, of the dangers of operating upon seriously ill patients too early, without careful study and preparation, because of

the rapid control of the toxic symptoms which the method seems to bring about.

I am glad that Dr. Wetherell stressed the importance of teamwork and gentleness in the operation of thyroidectomy. I agree with him heartily in all he said about the treatment of the poles, the protection of the nerve and parathyroids, the use of fine chromic catgut or silk, and the prevention of air embolism. The movie of his operation is a demonstration of a carefully planned operative technique, keeping the important points that he stressed in his paper in mind.

To C. H. Mayo, George Crile, and Martin Tinker belong the credit of adopting and advocating polar ligations and staged operations, as suggested by Theodor Kocher, in the treatment of the severely ill thyrotoxic patient. This was the first great advancement in our knowledge of this disease, which I will discuss more fully later. We all agree with Lahey that if a goiter death occurs it was perhaps due to too much surgery or because the operation was performed at the wrong time, but it is my belief that with proper painstaking and often prolonged preoperative preparation the need for the staged operation may be greatly reduced. I shall attempt to prove this later when I review the results of our method. However, great credit belongs to these pioneers, Mayo, Crile, and Tinker, for their early efforts to control the frightful mortality of this disease before Lugol's solution was employed.

I agree with Dr. Stover about the full cooperation between the surgeon and the anesthetist and that the anesthetist should be an experienced one, for he is a most valuable member of the goiter team.

Few men employ local anesthesia today. It is impossible to employ anoci-association with it, and for this reason we have never used it routinely. The protection the method offers the recurrent laryngeal nerves has been greatly overestimated, and I am convinced that it is a poor method to use with the severely ill patient. It is easy to obliterate pain sense by local anesthesia, but the sense of suffocation caused by elevating lobes that are deeply placed, adherent, or sub-sternal cannot be obliterated by local anesthesia, and many patients are terrified by this feeling of choking or suffocation. The oxygen requirements of a seriously ill thyrotoxic patient are greatly increased, therefore, ethylene or cyclopropane are much safer to use than ether or nitrous oxide. We have used ethylene for many years and are impressed with its advantages and with its wide margin of safety.

We employed avertin in about 200 cases and considered it an ideal adjunct to anoci-association. We had an unfortunate fatality due to respiratory center paralysis, and since that experience, which I reported before the Southern Surgical Association, we have discontinued its use.

I enjoyed Dr. Beilby's paper very much and agree with him especially in the plan he advocates

stances in the female, who shows an increase in exophthalmos during the menstrual period when the blood estrogens are at their lowest level, suggesting that this may be the resistant factor in the female. The lack of function of the gonads in cretinism and myxedema probably explains the nonoccurrence of exophthalmos in these conditions.

Diet probably plays some part, with a disturbance between the calcium and the phosphorus ratio as found in the experimental production of exophthalmos. Aub and his co-workers have shown great losses of calcium and phosphorus, even osteoporosis, in Grave's disease.

Incidentally, the long held idea that exophthalmos could be produced by the administration of thyroxine or desiccated thyroid has been proved a myth. On the contrary, its administration is a preventative. Further experimentation along these lines was done by Donald L. Paulson² of the Mayo Foundation, and the results were presented before the American Association for the Study of Goiter in April, 1940. He used a daily injection of 1 cc or 50 guinea-pig units of an extract of anterior pituitary containing potent quantities of the thyrotropic factor—antuitrin T. Nonthyroidectomized and thyroidectomized guinea pigs were the subjects employed. Protrusion of the eyeballs occurred twenty-four hours after the first injection in 80 per cent of the nonthyroidectomized pigs and in 100 per cent of the thyroidectomized animals, reaching a maximum in ten days in nonthyroidectomized pigs and increasing in those that were thyroidectomized as long as the injections were continued and not reaching a maximum until as late as the fifty-ninth day. The protrusion of the eyeballs in the nonthyroidectomized animals reached a maximum exceeding 2.5 mm, with an average of 1.84 mm, while in the thyroidectomized animals the increase was up to 2.6 to 6.0 mm, with an average of 3.29 mm. The mean percentage of water in the retrobulbar tissues (exclusive of the lacrimal glands) of the animals given antuitrin T increased by 5.03 mm in the nonthyroidectomized animals and by 6.37 mm in those whose thyroid had been removed. The edema in the orbital tissues seemed to be responsible for the exophthalmos.

In addition to the orbital changes, there were definite changes in the skeletal muscles in both groups as early as twenty-four hours after the beginning of the injections. The muscles appeared pale on gross examination and showed diffuse Zenker's degeneration.

After three or four days, in addition to degeneration, a marked cellular reaction occurred, consisting of masses of phagocytes, giant cells, and lymphocytes. Hemorrhage due to tearing of necrotic muscle was visible at this stage. Later on, these changes were less marked, due probably to some degree of recovery. The heart muscle showed similar changes.

Sodium iodide and di-iodotyrosine given in daily doses of 100 mg failed to arrest the development of exophthalmos or muscle degeneration, but they did lessen the hypertrophy of the thyroid gland and prevent rise of the metabolic rate.

Smelser,⁵ working with guinea pigs, drew the following conclusions from a series of experiments:

- 1 The hypertrophy and pathologic modification of retrobulbar tissues found in exophthalmos, produced by the injection of anterior pituitary extract in the thyroidectomized guinea pigs, is independent of Muller's orbital muscle.

- 2 The changes are unaffected by unilateral or bilateral extirpation of the cervical sympathetic ganglia.

- 3 The ptosis created by sectioning of the cervical ganglia or by removing Muller's muscle decreases the apparent degree of exophthalmos.

- 4 Exophthalmos, produced as described and judged postmortem, is not dependent either upon Muller's muscle or upon sympathetic innervation through the cervical ganglia.

- 5 Orbital decompression as achieved in experiments does not relieve the condition of the orbital tissues but slightly decreases the degree of proptosis.

Grace and Weeks,⁶ in a review of a series of 360 consecutive cases of thyroid disease, concluded that the "postoperative regression in exophthalmos is apparent and not real."

Treatment

So far as advancing and severe exophthalmos is concerned, no satisfactory statement as to medical treatment can be made.

Helfern, in 1933, reported benefit from the estrogenic substances in humans.

The wide use of Lugol's solution has greatly lessened the incidence of exophthalmos in the past few years. Rudemann,⁴ in 1931, advised thyroid gland by mouth, and in the patients who show lower metabolic rates than the average normal, a combination of Lugol's with fairly large doses of desiccated thyroid

performed. The basal metabolic reading wrongly interpreted is a dangerous and misleading test. Instead of using iodine in the treatment and prevention of adolescent goiter and for the preparation of the toxic case for operation, iodine is used for the treatment of hyperthyroidism, and we see many patients with quiescent adenomatous goiter seriously harmed by its use. We also see many patients who have been treated for many months with large doses of iodine, iodine refractory, or iodine fast at the time of examination and who show all the symptoms of hyperthyroidism which have returned and have continued after a quiescent period of improvement, during which time the operation should have been performed. In the minds of some it is customary to employ iodine for a week or ten days and then operate upon the patient, employing a staged operation that might have been prevented. As a matter of fact, we have found that it often requires several weeks to prepare the seriously ill patient, but we have often been rewarded by being able to perform the radical operation of thyroidectomy after this period of prolonged but careful preoperative preparation. We never decide upon first examining the patient whether a ligation, a staged operation, or a radical thyroidectomy should be performed in a particular case without careful study and careful preparation.

We are impressed with the value of fully appreciating the degree of psychic disturbance in our patients, for we believe there is no disease in which the symptoms are so much aggravated by the degree of emotional imbalance. It is for this reason that we approach these patients, studying them, preparing them, anesthetizing

them, and treating them postoperatively according to a plan that has practical psychology as its basis. It might be said that we spoil our patients with hyperthyroidism, but we are convinced that if we are to keep our staged operations at a low point and our mortality within acceptable bounds these cases must be handled by a special technic directed by those who understand the harmful effects of fear upon them.

To summarize, the methods that we employ to prevent postoperative crisis are adequate preoperative preparation, psychic support, anoxia-association, good general anesthesia, teamwork, the postoperative use of iodine, the postoperative use of oxygen, the maintenance of fluid balance, and sedation.

In our clinic we have kept our mortality within the acceptable limits. We have reduced our hospital morbidity, and we have greatly reduced the need for staged operations. For example, in reviewing the results of 1,436 patients operated upon for goiter in the last 11½ years, we find there has been but one ligation performed in our clinic in the past thirteen years. There were twenty-one staged operations performed upon 1,087 of those patients who had hyperthyroidism, with a percentage of 1.9. Among the total cases (1,436), there was a percentage of 1.4 of staged operations. There were 10 deaths among the 1,436 patients, or a mortality of 0.69 per cent. Among the 1,069 toxic cases, there were 8 deaths or a mortality of 0.74 per cent. There has been 1 death in the last 537 patients operated upon.

Permit me to express my appreciation of the honor of being invited by the section to discuss this excellent symposium upon the treatment of hyperthyroidism.

OPPORTUNITIES FOR YOUNG PHYSICIANS IN CIVIL SERVICE

is the title of an article by Dr Verne K. Harvey and Dr E. Parker Luongo that appeared in a recent issue of the *Medical Annals of the District of Columbia*. It is not generally known, as they say, that a physician in the Civil Service may participate in any phase of medical activity, ranging from a rural practice to the most highly specialized fields and that a considerable number are engaged in the general practice of medicine—for example, those employed in the Indian Service of the Department of the Interior. Young physicians may be employed under Civil Service as far south as Panama and as far north as Alaska.

They list the various fields including the Veterans Administration, with its numerous clinics, and describe the work carried on at St. Elizabeth's Hospital in Washington, D. C., which is under the jurisdiction of the Federal Security Agency. The Food and Drug Administration, the Children's Bureau in the Department of Labor, and the Public Health Service are other fields that physicians in Civil Service may enter.

Information about the openings and examinations may be obtained from the Commission's representative at any first- or second-class post office or from the Central Office in Washington.

BARE TRUTH

Girls when they went for a swim,
Once dressed like Mother Hubbard,

Now they have a different whim
And dress more like her cupboard.—Analyst

for the preparation of the seriously ill patient approaching, or in, crisis His plan of prolonged preoperative preparation including bed rest, high calorie diet, high fluid intake, vitamins, and suitable sedatives, his use of compound solution of iodine as the specific preoperative treatment of choice, and the psychotherapy he employs are all excellent ideas

I am glad to note that by the proper preparation and selection he has reduced the need of staged operations to less than 5 per cent in his work He is correct when he says that a technic planned to avoid the nerve rather than expose it will surely prevent less injury to the nerve and, as he has wisely pointed out, the use of silk, gentle handling of tissues, and adequate hemostasis will reduce the production of serum and lessen the need for drainage and the danger of postoperative infection

I also enjoyed Dr Brady's paper on exophthalmos My experience with progressive exophthalmos is naturally, and I am glad to say, limited It is interesting to note in reports that the majority of patients who develop this distressing and rare complication are men and that most of them are in a state of mild hypothyroidism Two of our 3 patients improved under conservative measures, directed to keeping the metabolic rate slightly above the normal time Both of these patients had unusually good results The third patient received an excellent result from a double Krönlein operation (a much less radical one than the Naffziger operation), but the Naffziger operation, in spite of its magnitude, provides relief to the patient with the progressive type whose sight is imperiled

To appreciate what changes have taken place in the treatment of hyperthyroidism perhaps a short account of my early experiences with this disease will be of interest In 1906 I became associated with C H Mayo as a member of his goiter team, and I recall with interest the tragic experiences we had with the patients who were seriously ill with hyperthyroidism, for postoperative crises were extremely common and the mortality was extremely high Von Eselsberg lost 3 of his first 4 cases, C H Mayo lost 4 of his first 16 patients, 3 of the next 30, 1 in the next 75, and 4 in the next 278

Irrespective of the degree of intoxication, all patients received the same radical form of surgical therapy They were brought to the operating room and anesthetized on the operating table with ether, and a unilateral lobectomy was performed upon each of them. This was before the use of saline and glucose infusions and before oxygen was employed therapeutically The postoperative thyroid storms were terrible to observe and to treat In those days the house staff believed that any patient who was strong enough to survive the operation for thirty-six hours would probably recover C H Mayo and Plummer noticed that an operation performed too soon after a crisis almost always

proved to be fatal, and they decided from this experience to withhold operation for a few months after a crisis This was the first conservative step suggested in the treatment of hyperthyroidism.

In 1908 Kocher advocated the use of preliminary polar ligation, a method adopted by all surgeons in this country who were brave enough to treat the disease surgically And, as a result of preliminary ligations, the multiple-stage operations developed. This method of treatment was suggested and advised by Mayo, Crile, and Tinker The patient seriously ill with hyperthyroidism was subjected to two or more polar ligations, performed two or three months apart Then a partial lobectomy was done, followed in three months by a second partial lobectomy, often employing the use of boiling water (suggested by Miles Porter) to destroy some of the parenchyma of the gland after the ligations or during the period between the lobectomies As a result of this plan—and it was then the only safe plan to treat those seriously ill with the disease—several months, a year, and sometimes even a longer time elapsed before the surgery could be completed and the patient restored to health. The psychic, the physical, and the financial strain placed upon these patients was almost unbearable, but as a result of the method the mortality fell constantly In those days the use of iodine was taboo, because Kocher noticed that its use produced toxic symptoms in quiescent nodular goiter—the type so common in Switzerland—and he warned against the use of iodine in the treatment of goiter Following the master without using their heads, all surgeons in America gave up the use of iodized catgut and the use of iodine to prepare the skin of the operating field, and the regrettable thing about it was that these patients were crying for iodine in large amounts.

In 1922 Plummer advocated the use of iodine in the preparation of the patient with hyperthyroidism His plan of treatment, based upon his theory of its beneficial effect upon the disease, is so well known that I shall merely refer to it as the greatest contribution to our knowledge and treatment of the disease. It has done more to reduce the mortality and the morbidity of hyperthyroidism than any suggestions made before or since that time The isolation of thyroxin by Kendall in 1914, together with its effect upon the basal metabolic rate, has also increased our knowledge, and practically all surgeons use iodine in preparation and the basal metabolic rate to estimate the degrees of hyper- and hypothyroidism.

Unfortunately, in spite of all that has been written, there is a misunderstanding in the minds of many about these important subjects. Too much reliance is placed upon one metabolic reading, often taken incorrectly, without a careful and painstaking study of the patient, with the result that an uncalled-for operation is often

The specificity arises not from the state or the site but from the type of the invading organism. A diphtheritic infection of the genitalia is a specific infection as truly as though it involved the fauces and the larynx. The location modifies the symptoms, the course, and the result. The same is true of other types of organisms which invade the female genital tract, though, of course, there may be several types of organisms involved in the process of which one may be dominant. Pasteur pointed out the fact that streptococci produced genital infection in the puerperal period, and for many years the streptococcus represented more or less of an entity as distinguished from the staphylococcus and the diplococcus.

The epidemic character, the contagious nature, and the carrier idea having been developed and promulgated, there remained certain cases that could not be explained fully by such an hypothesis. The theory developed that there might be two categories of puerperal fever which could be defined as exogenous and endogenous infections. One author remarks that the latter theory was more often based upon an excuse rather than upon scientific data. This is either facetious or unjust, since there are undoubtedly cases in which the infectious agent is present in the patient at the time of delivery. This idea of endogenous infection must be based upon one of two conceptions. First, that a pathogenic organism is present but inert prior to confinement or that a nonpathogenic bacterium becomes pathogenic subsequent to the change in environment from a pregnancy to the puerperium.

It is difficult to define an endogenous infection because of the impossibility of knowing exactly when the offending organism was introduced into the genital tract. Personally, the terms exogenous and endogenous infection do not appeal to us, since they confuse rather than clarify the picture. The genital tract tends to be noninfectious and has a natural flora determined by tissue and chemical conditions.

In classifying infections from a clinico-pathologic point of view, it is important to attempt to clarify the factors involved. This might be done by recognizing that infections of the genital tract may be antepartum, intrapartum, or postpartum and that during these periods they may be latent or active. All genital tract infections may be regarded as either contact or metastatic. All contact infections occur either from the woman

herself or from some attendant who brings the organisms to her through various mediums. Metastatic infections are relatively uncommon, but organisms lying in remote portions of her body and gaining access to the blood or lymph channels may become deposited in the genital tract and excite inflammation. The types of organism involved in any of these processes may vary greatly from time to time depending upon their prevalence and from case to case depending upon environment and susceptibility of the individual. Various organisms have been and still are associated with puerperal infection, but at this time we are concerned with the most prevalent and serious variety of infectious agent which occurs in inflammation of the puerperal genitalia. The streptococcus discovered by Mayerhofer was isolated by Pasteur from cases of puerperal fever, and for a long time all streptococci were considered to belong to one and the same group.

We know now that while all streptococci have certain identical morphologic characteristics and many cultural propensities in common their pathogenetic properties differ markedly. As with puerperal fever so with other diseases, they were at first clinical entities that could not be classified until their etiology was established. In some instances, the clinical picture was so clear that when the etiologic agent was found the disease entity persisted. This is well illustrated by scarlatina and erysipelas. Puerperal fever does not belong to such a group, consequently, one has to define such a clinical picture according to the infecting agent. This becomes progressively of greater importance when the treatment becomes more specific. The relationship between various diseases also becomes clearer as we learn that the etiologic agent is the same even though the manifestations vary with the condition of the patient and the site of attack. It has long been noted that certain cases of puerperal fever had an erythematous rash, but it was not clear that scarlet fever and certain types of puerperal fever were the same until it became known that certain strains of streptococci produced an erythrogenic toxin. It is difficult to trace the exact course of our knowledge of the streptococcus family. At first all cocci seem to have been included in the same morphologic group. Certain characteristics were noted, such as a tendency to multiply in chains, in groups, or in packets. Subsequently, certain differences were noted in their growth products, and the strepto-

STREPTOCOCCIC PUERPERAL INFECTION

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THE history of our knowledge of puerperal infection parallels the development of our knowledge from the realm of the unknown—surrounded by superstition, the supernatural, and mystery—to that of the known with proved facts and intelligent interpretation.

There is no reason to doubt that females of many species have succumbed to genital infection and that puerperal infection has caused death since animal life began. There is no doubt of its existence among the primitive tribes, of more recent times, who have had no means of recording the events that affected them. The earliest medical chronicles point definitely to the existence of such afflictions that the incantations of the medicine men and priests were powerless to control. Thousands of years passed with no conception entering the human mind as to the nature of this disease. Within the past two centuries various advance guards among the physicians have suggested that it might be a transmissible disease. The physicians from Hippocrates to Paré inclined to the idea that this disease was associated with lochial retention or suppression. The epidemic character of the disease seems to have been recognized early during the seventeenth century in Leipzig, in Paris, in Copenhagen, and in Normandy. The first suggestion as to its possible relationship to other types of infection seems to have been made by Pouteau (1750), who described an epidemic in the Hotel Dieu de Lyon under the title "Inflammation erysipelateuse du bas ventre."

Less than one hundred years ago a few advocates of the contagious theory were deemed and denounced for suggesting that unclean hands could possibly "be the minister of evil" to the mother in labor. Although Young, Cedersjöld, Gordon, and others antedated Holmes and Semmelweis, their observations were not emphasized by becoming controversial and their ideas lay dormant awaiting the advent of the historic mind interested in delving into the records of the past. Leuwenhoeck with his lenses,

Koch with his anthrax, and Pasteur with his streptococci illuminated the path that was blazed by their forerunners. The work of Tarnier, DePaul, Siredey, and others supplemented the efforts of their predecessors, and the epidemic and contagious character of the disease came to be accepted. It was shown that outbreaks were more common in hospitals and cities than in homes and the country. Tarnier (1858) proved that in the same sections of Paris the maternal mortality was 1 to 19 in the hospitals and 1 to 322 in the homes. Tenon demonstrated that conditions within the hospitals influenced the mortality in l'Hotel Dieu by comparing that of 1786 with that of 1836. He attributed a reduction in the mortality to the fact that in 1786 more than 1 patient occupied the same bed while in 1836 each patient had a separate bed.

Siredey (1861), by separating the sick women from the well, was able to reduce the mortality from 68 to 25 per cent. It is hardly possible for us to believe that about eighty years ago 1 woman out of 40 who delivered in a hospital died. One of the earliest and most striking examples of carrier infection was the case of Dr. David Rutter (1843) who had a maternal mortality of about 20 per cent while his contemporaries had a nominal one. He gave up his obstetric practice for a time but subsequently resumed it with a corresponding result. If he had cured his ozena, more of his patients would doubtless have survived.

Lister, by his application of the scientific knowledge of Pasteur, established surgical antiseptics, which combatted wound infection. The recognition of bacteria in general led to the discovery of different types related to definite disease entities. The recognition by Koch of tuberculosis and the establishment of his postulates proving the specificity of the tubercle bacilli were the landmarks by which the relation of a type of bacteria to a given disease could be proved. Puerperal infection was not a specific disease, and the name should be interpreted to mean a time and place relationship. In other words, it indicates only that during the period of the puerperium the woman is suffering from an infection that originates in, and spreads from, the genitalia.

Read by invitation at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, April 30, 1941.

From the Department of Obstetrics and Gynecology, the University of Chicago and the Chicago Lying-in Hospital.

and blood stream extension, either singly or in combination. The former is essentially a lymphangitis and the latter is a thrombophlebitis with or without emboli. Blood stream infections may be direct into the uterine sinuses or indirect through the lymphatic channels. The latter mechanism prevailed in the epidemic described by Watson. The direct lymphatic spread is the prevailing one, and in severe cases the infection spreads through the uterine wall like water through a sponge and a general peritonitis results. Surface extension rarely occurs in streptococcic puerperal infection. This is more characteristic of gonococcic infections.

Remote organ involvement occurs either from lymphatic spread or from blood-born emboli. Massive infarction may cause sudden death. Various strains have different behavior. The hemolytic types tend to produce anemia and vary greatly in their invasive properties. Butler and Hill are of the opinion that encapsulated forms resist phagocytosis and have high invasive characteristics. They believe Lancefield A is the most frequently potent type. Infection with B is generally mild but occasionally severe. Infections with C and G are usually mild.

Clinical types consist of antepartum, intrapartum, and postpartum infections. Metastatic infections may develop during pregnancy, but antepartum infections are more commonly associated with ruptured membranes and delayed onset of labor. Intrapartum infections usually arise in protracted labors often with ruptured membranes, frequent vaginal manipulations and poor aseptic technic. So-called postpartum infections may be truly postpartum, usually from poor technic in puerperal care. They are generally the result of contact infection in the terminal second-stage, third stage, or immediate postpartum period. Carriers, poor aseptic technic, contact from infected urine or feces, in addition to the contributory factors, are responsible for these infections.

Most authors find that the hemolytic streptococci are responsible for their cases, but some point to the frequency of the anaerobic type of infection. The clinical course depends upon the virulence of the organism, the acrimony of infection, and the resistance of the patient. Fever, chills, varying clinical findings together with leukocytosis, positive uterine smears, and cultures, and positive blood cultures determine the diagnosis. The degree of fever varies from slight to high, is usually

irregular, and attains irregular high peaks associated with chills in the thrombophlebitic type.

The treatment consists of the prophylactic, which is accomplished by overcoming anemia, maintaining proper nutrition, and eliminating the foci of infection. Specific immunization has been tried but its value has not been proved. We have immunized over 1,100 patients with no deaths, but the postpartum febrile morbidity of these patients was not better than our general morbidity. All of these patients were skin sensitive to streptococcic toxins. Some gave a history of antecedent streptococcic infections and others gave no such evidence. There was no significant difference in the morbidity of these two groups. Our evidence, as well as that of others, indicates that the value of antepartum immunization is at least doubtful.

The most important preventive treatment is the avoidance of carriers and infectious contacts and of poor aseptic technic, trauma, and blood loss prior to, during, and subsequent to labor. Up-to-date aseptic and antiseptic technic must be employed. Patients must be kept in a constantly clean environment and infected persons, whether patients, attendants, or visitors, must be kept away from the parturient woman. Antiseptic vaginal instillations have been advocated and used by some. All these details are too extensive for discussion at this time.

The treatment of the actual infection consists of proper rest, nutrition, and nursing care. Transfusions overcome anemia and have supportive and nutritive value. Specific therapy is now available with the sulfonamides, of which three are of proved value—sulfanilamide, sulfapyridine, and sulfathiazole. The relative value of these has not been finally determined. The latter two are certainly less toxic. The first named is of great value in treating hemolytic streptococcic infections but is of no help in curing those due to anaerobic streptococcus. The second is of specific value in pneumococcic infections. The last is more specific for staphylococcic and gonococcic infections but may prove useful in hemolytic streptococcic infections as well. Inasmuch as sulfonamide therapy is of such proved value in hemolytic streptococcic infection, which is the most frequent type in serious and fatal cases of puerperal fever, the following procedures are recommended. There is no time for discussion of pros and cons of the sulfonamides, so this rather specific information is given.

cocci were placed along with certain bacilli in the category of those bacteria that ferment sugar and usually produce lactic acid. This property and their ability to grow aerobically and anaerobically, to form chains, and to stain positively with Gram's method are the common characteristics of all streptococci, and for some time no further differentiation was made. The picture was somewhat confused because the environment sometimes altered the growth tendencies of certain organisms. Morphologic characters seemed to be the starting point for the classification of the streptococcus group. At first there was the subdivision into the long and the short chain streptococci. Such characteristics are variable and not pathognomonic, though, in general, the former are pathogenic to man and the latter are either weakly or not at all pathogenic. All varieties are parasitic and exist in the mouth and upper parts of the respiratory and gastrointestinal tracts. The latter relatively harmless group also occurs in dairy products. The fact that certain types had hemolytic properties and others had not led to the next step in the recognition of the various types. Much confusion arose which more recently has been overcome by the use of differential cultural methods. Schottmueller (1903), who pioneered in using blood cultures for diagnosing infectious diseases, was able to show the hemolytic power of certain strains of streptococci on blood agar plates.

This basic method led to the subdivision of streptococci into the green-producing *Streptococcus viridans* and the hemolyzing *Streptococcus hemolyticus* strains. A third strain that produces no change in blood cells has also been recognized. Schottmueller recovered anaerobic streptococci from the blood of patients with puerperal infection, many of whom had thrombophlebitis. Colebrook, Schwarz and Dieckmann, and Brown have called attention to this observation and confirmed it with some of their own. This variety is for the most part saprophytic, but under certain circumstances it is pathogenic to man. As a group it is nonhemolytic and is gas-producing.

These observers believe that these streptococci are frequently present in the flora of the normal vagina. Fermentation, agglutination, precipitin and antigenic reactions have been used to type the hemolytic streptococci successfully. On the basis of such cultural and biochemical characteristics Lancefield and others consider it possible to differentiate

into serologic groups streptococci from human, bovine, and other sources. Colebrook and his associates have proved that certain strains of hemolytic streptococci are pathogenic to man and others to animals and that still other strains are nonpathogenic. He believes that pathogenic hemolytic strains are rarely found in the vagina. Lancefield has classified these strains into A, B, C, D, etc., by the use of the precipitin tests with extracted polysaccharides. Griffith has been able to subdivide further the group from human sources—that is, Group A into many types of which at least thirty-two have been differentiated.

While much knowledge has been gained there is much to be learned. It is clear that the hemolytic attribute is no longer an index of pathogenicity and that the streptococcus in common with organisms causing fermentation can grow, though not luxuriantly, under either aerobic or anaerobic conditions. We now know that certain strains can produce an exotoxin that has erythrogenic properties—as in scarlet fever and certain forms of puerperal infection. This strain does not, however, seem always to elaborate this exotoxin, as shown by the observations of Plass and his coworkers and others. Various studies indicate that pathogenic hemolytic streptococci seldom occur in the genital tract of pregnant women but, on the other hand, the non-hemolytic nonpathogenic and the anaerobic streptococci do occur. Of the Lancefield strains, Group A is pathogenic to man and causes scarlet fever, puerperal sepsis, erysipelas, septic sore throat, or pneumonia. These strains are not specific for any one disease but may cause scarlet fever in one patient and puerperal sepsis or erysipelas in another. Groups B and D are associated with mild infections and may be found in the antepartum genital tract and also in the human throat. D occurs in the human intestinal tract also.

It seems clear that there is an anaerobic strain of streptococcus which is pathogenic to man, attacks dead tissue, produces infection, especially postabortal, invades thrombi, and causes thrombophlebitis. Colebrook has recognized one group as pathogenic and another that is not.

The primary pathology of streptococci puerperal fever is that of a wound infection of the vulva, the vagina, the cervix or the placental site. The contributory factors are infectious contacts, trauma, and blood loss. Mild streptococcal infections may remain localized but the tendency is for lymphatic

and blood stream extension, either singly or in combination. The former is essentially a lymphangitis and the latter is a thrombophlebitis with or without emboli. Blood stream infections may be direct into the uterine sinuses or indirect through the lymphatic channels. The latter mechanism prevailed in the epidemic described by Watson. The direct lymphatic spread is the prevailing one, and in severe cases the infection spreads through the uterine wall like water through a sponge and a general peritonitis results. Surface extension rarely occurs in streptococcic puerperal infection. This is more characteristic of gonococcic infections.

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Sulfonamide Therapy

Severe Infections

Sulfanilamide—maintain blood level at 10–15 mg/100 cc

- Dosage
- a 0.5 Gm trial dose
 - b Large initial dose (3–5 Gm)
 - c 5–8 Gm daily divided in equal 4-hour doses

Sulfathiazole

Dosage 3–6 Gm daily divided in equal 4-hour doses

Blood

Daily hemoglobin, cell volume, white blood count, and blood level unless otherwise specified

Mild Infections

Sulfanilamide—maintain blood level around 5 mg/100 cc

- Dosage
- a Trial dose 0.5 Gm
 - b 4–5 Gm daily for 3 days in 5 equal doses
 - c 3 Gm daily for 4–10 days in 5 equal doses

Sulfathiazole

- Dosage
- a. 3 Gm for 2 days in 6 equal doses
 - b 2 Gm for 6–8 days in 4 equal doses

Blood

Daily hemoglobin, cell volume, white blood count, and blood level unless otherwise specified. Collect approximately same time of day, 1st, 2nd, 3d, 5th, 7th, 9th days

If peritonitis occurs, the Wangensteen gastrointestinal drainage is helpful. Localized drainage of abscesses is naturally essential, but heroic treatment of diffuse peritonitis by surgical procedures is of doubtful value. The attempt to ligate thrombosed pelvic veins will result in many casualties and can hardly be justified. The treatment of streptococcal puerperal fever has become specific for the Lancefield groups. There is also some specific chemotherapy for other types of infection which do not come under consideration at this time. This is no reason for in any way relaxing preventive measures that, on the whole, are more effective than any curative therapy.

Discussion

Dr Milton G. Potter, *Buffalo, New York*—It is presumptuous on my part to attempt to discuss the opinions that were presented so clearly by such an authority as Dr Adair. I believe it can be said without exaggeration that his individual efforts have done more to reduce maternal mortality in this country during the past three years than anyone else's. While he is internationally known as a textbook author

and teacher, his fame will stand out in American obstetric history for his pioneer work with the American Committee on Maternal Welfare and his development of the American Congress on Obstetrics and Gynecology.

I am naturally in accord with what was said and am only speaking to re-emphasize in my own words some of his remarks that I feel are not generally well understood by the medical profession.

Puerperal fever is now the greatest cause of maternal mortality and, while great advances in the past twenty years have reduced the incidence, it is my distinct impression that in this locality during the past five years the incidence of maternal mortality from sepsis remains fairly constant in spite of the advent of the sulfonamides, which could be called glory dust, for it appears to be used for everything indiscriminately.

Considerable confusion still exists concerning the classification of streptococci and the use of sulfonamides.

It must be kept in mind that in general there are two types of streptococcal puerperal infections which are clearly defined and differentiated clinically and bacteriologically.

By far the most common type is that caused by the anaerobic streptococcus, which exists in the vagina prior to delivery, is ordinarily innocuous to the individual, and only becomes pathogenic or runs wild when the individual resistance of the patient is lowered by long labors, ruptured membranes, trauma, hemorrhage, or shock.

The 8 cases of sepsis which died in Erie County last year probably belonged in this type. Six of these were delayed cesareans and 2 were spontaneous deliveries.

No amount of chemotherapy will change the course of this infection, which varies in severity and is usually characterized by irregular fever, foul-smelling lochia, thrombophlebitis, and a pulse that is slower than one would expect with the existing temperature.

I have been taught that the greater the smell the better the prognosis in these cases.

Quite different is the puerperal infection caused by the Group A hemolytic streptococcus. This organism is definitely pathogenic to the human, is introduced by indirect or direct contact and, fortunately for all concerned, is a rarity.

The rarity of this organism in the parturient case is no doubt due in part to the meticulous care taken in most hospitals concerning the proper masking of nursing and medical attendants to avoid the contact of a possible carrier and is probably also due to the improved obstetric technic and the more frequent use of consultations.

This virulent type of infection is usually characterized clinically by a high, or moderately high, temperature with a rapid pulse, the lochia

is clear or sanguinous and for the most part odorless. If the cultures from the vagina, cervix, or uterus show this type of organism, sulfanilamide is indicated. It must be remembered that sulfanilamide is only of specific value in this type of infection. The clinical classification of antepartum, intrapartum, and postpartum infections, as suggested by Dr. Adair, clarifies our thoughts on this subject. His discourse on the preventative and prophylactic treatment is clear and cannot be overemphasized. It has been my experience with this infection during the postpartum period that transfusions of smaller amounts of blood more frequently seem more beneficial than massive transfusions.

We have, but, of course, rarely—since one must be pretty certain in his diagnosis—resorted to the use of the Porro operation when confronted

with antepartum and intrapartum localized uterine infections with satisfactory results, and the advent of the supravaginal section also offers possibilities in these types of infections.

In summarizing I would reiterate that sulfanilamide is of therapeutic value only in the aerobic Group A hemolytic streptococcal infections and that its action is not bactericidal but bacteriostatic.

While I do not believe that chemotherapy should be used in minor febrile disturbances, I would, if confronted with a definite postpartum puerperal infection, immediately institute sulfanilamide therapy and then obtain cultures from the vagina, uterus, and cervix. I would continue the therapy only if a hemolytic streptococci, *Bacillus coli*, or *Bacillus welchii* were reported, and I would add to that therapy supportive measures mentioned by the speaker.

PHYSICIANS FOR SERVICE IN THE ARMY OF THE UNITED STATES

While at present no appointments are being made in the Medical Corps Reserve, additional physicians are needed for service in the Army in connection with the current military program. Appointments, however, are being made in the Medical Corps, Army of the United States, in which a very large number of vacancies exist, to bring the Medical Department to required strength and to furnish replacements for medical officers now on duty.

Peacetime regulations governing the Medical Corps Reserve apply to appointments in the Medical Corps, Army of the United States. Candidates must be between the ages of 24 and 36, hold the degree of Doctor of Medicine from an approved medical school, be licensed to practice medicine in a State, Territory, or in the District of Columbia, and be engaged in the ethical practice of medicine. License to practice and actual practice of medicine may be waived for recent graduates engaged in graduate training. All applicants must meet physical standards.

While appointments may be granted on successful completion of the prescribed four-year course of medical instruction, such appointees are not eligible for active duty until they shall

have completed at least one year's hospital internship. They are then available for active military duty. If there are sufficient medical officers to meet the military requirements, it may be possible to grant deferment of active duty for the purpose of pursuing further graduate training.

Appointments, other than for the purpose of assignment to affiliated medical units of individuals associated with the sponsoring institution and upon recommendation of institution authorities, will not be made at this time of applicants above the age of 35. All such appointments will be in the grade of lieutenant.

In the event of a national emergency, these restrictions will be removed, thus permitting the appointment of qualified individuals above the present age limit and in grades commensurate with their professional training and attainments.

It is strongly urged that young physicians, especially those who are completing internships, residencies, or other graduate training, make application for appointment as First Lieutenant, Medical Corps, United States Army. Inquiries should be addressed to The Surgeon, Second Corps Area, Governors Island, New York.

TO REHABILITATE PATIENTS WHO HAVE BECOME VOICELESS

through loss of the larynx, a clinic has been opened at the National Hospital for Speech Disorders, according to Dr. James S. Greene, medical director. Treatment is given to develop a substitute voice, and at the same time social aid is given the patient to help him readjust to his surroundings.

The hospital also is undertaking a series of

brain wave studies to determine if stuttering can be correlated with specific brain wave patterns and whether anxiety induces any significant changes in the patterns. Dr. Donald J. Simons, working under the supervision of Dr. Harold G. Wolff of the Cornell University Medical College, is in charge of the study program, which is made possible by special grants.

OVARIAN CANCER

Clinicopathologic Evaluation

ANDREW A. MARCHETTI, M D, New York City

IF, AS Millar¹ has put it, "the history of cancer has been the history of one of the great failures of man," the record of cancer of the ovary has been the history of one of the great failures of the gynecologist. When an analysis is made of the reported end results of the treatment of ovarian cancer, the same distressing and dismal note is universally sounded—the outcome is poor. The present evaluation will be no different insofar as the end results are concerned, since one will find them as discouraging as any reported. However, gloomy as the outlook may appear from our past experiences with cancer of the ovary, rays of hope and encouragement break through that vast amount of untiring world-wide cancer research in anticipation of the day, be it far or near, when its baffling and nebulous barriers will be fully penetrated by the discovery of its cause or prevention and, eventually, of its adequate treatment and universal cure. Careful study and review, from time to time, of the clinical data and observations that accumulate in well-conducted clinics is vital, for as Sir James Paget once said "We are bound to search everywhere and in all ways."

No apologies need be advanced for the number of patients reviewed in this report, for while they may be considered numerically small they are sufficiently numerous to lend themselves satisfactorily to analysis. The completeness of the data and follow-up especially enhance the value of the study. The analysis, from the clinicopathologic approach, is made as a preliminary study with two special objectives in view—namely, to obtain a better perspective of what has been our experience with cancer of the ovary in the stated period of time that has elapsed and to secure in whatever way possible a better approach to the problem for the future.

Statistical Data

The statistics in this report are based upon 7,009 individual admissions to the Gynecological

Service in the Woman's Clinic of the New York Hospital and covers the period of eight years and four months from September 1, 1932, to January 1, 1941.

During that time there were 1,164 ovarian cysts (neoplastic and nonneoplastic) and tumors found among the 7,009 individual patients, representing only the lesions that were actually diagnosed subsequent to macroscopic and microscopic study of all the pathologic material. The clinic incidence of these particular ovarian cysts and tumors then is found to be 16.6 per cent or 166 per thousand. Of the 1,164 instances, 1,104 or about 95 per cent were considered benign, while 60 or about 5 per cent were diagnosed as cancer. Thus, for this clinic, the ratio of benign to cancerous ovarian growths is approximately 19 to 1. However, if the 776 nonneoplastic lesions are deducted, the remainder constitutes a total of 328 primary benign neoplasms of the ovary establishing a ratio of these new growths to cancer of the ovary of about 5½ to 1 (see Table 1).

A diagnosis of cancer of the female genital tract was made in 351 patients, a clinic incidence of about 5 per cent or 50 per thousand. Tables 2 and 3 indicate its distribution according to lesions and organs and reveals that 60 cases or 17.1 per cent involved the ovaries, consequently making the clinic incidence of cancer of the ovary 0.85 per cent or just more than 8 per thousand (Table 4). The 60 patients with ovarian cancer were cases in which the diagnosis was unequivocal and excluded 13 cases in which the diagnosis was qualified by such phrases as, "potentially malignant," "malignant tendencies," "essentially benign"—phrases sufficiently disturbing to the pathologist and clinician to warrant treatment in many instances as though the lesion were cancer. Later, it will be pointed out that a closer histologic study of the tumor tissue and the clinical course of the patients in this special group justify, for the time being, their removal from the cancer group.

Table 1 indicates the manner in which the cases of ovarian cancer were classified, and shows the predominance of serous cystadenocarcinoma, 44 cases or 73.3 per cent. It also shows that the serous type, in our experience,

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From the Department of Obstetrics and Gynecology the New York Hospital and Cornell University Medical College.

TABLE 1.—CANCERS OF THE OVARY

	Cases	Per-centage
Serous cystadenocarcinoma	44	73.3
Pseudomucinous cystadenocarcinoma	6	10.0
Teratoid (embryonal adenocarcinoma)	5	8.3
Granulosa-cell carcinoma	4	6.7
Squamous-cell carcinoma in der- moid cyst	1	1.7
Total number of cancers of the ovary	60	100.0
Total number of benign ovarian cysts and tumors	1 104	95
Total number of cancers of the ovary	60	5
	1 164	100
Ratio of benign to cancer—19 1		
Total number of primary benign neoplasms	328	84.5
Total number of cancers of the ovary	60	15.5
	388	100.0
Ratio of primary benign neoplasms to cancer—about 5 1/2:1		

is over seven times more prevalent than the pseudomucinous type, 6 cases or 10.0 per cent. There were 5 cases of teratoid or embryonal adenocarcinoma—some of these undoubtedly would be designated as mesonephroma ovarii by Schiller—4 cases of granulosa-cell carcinoma, and 1 case in which squamous-cell carcinoma was found in a well-encapsulated dermoid cyst.

Clinical Data

Since the greater part of the ovarian cancers in this clinic consisted of serous cystadenocarcinoma, a fact that conforms to practically all reported clinicopathologic statistics, the analysis here will be confined to the 44 cases falling under that category.

One soon learns that the symptomatology appears late and that the early stages of the disease are insidious and go unrecognized. It is primarily for these reasons that, unfortunately, the doctor, as a rule, is not sought until the disease is considerably well advanced. The two most common complaints that appeared in over 70 per cent of the patients in our series are noticeable, oftentimes rapid enlargement or "swelling" of the abdomen and lower abdominal pain. Depending upon the extent and nature of the involvement, such complaints as dyspnea, nausea and vomiting, constipation, backache, anorexia, a general feeling of fatigue or weakness, loss of weight, and to a lesser degree vaginal bleeding may accompany or may appear independently of the two aforementioned commonest complaints.

No age is exempt of the disease. The earliest case occurred at 23, the oldest, at 74 years of age. However, from Table 5 one notes that 75 per cent of the cases occurred between the ages of 40 and 60. Serous cystadenocarcinoma of the ovary essentially is a

TABLE 2.—DISTRIBUTION OF CANCER OF THE FEMALE GENITAL TRACT ACCORDING TO LESIONS

	Cases	Per-centage
Squamous-cell carcinoma of the cervix	149	42.45
Adenocarcinoma of the body of the uterus	90	25.64
Serous cystadenocarcinoma of the ovary	44	12.54
Adenoma malignum of the endome- trium	15	4.28
Adenocarcinoma of the cervix	7	1.99
Carcinoma of the vulva	7	1.99
Leiomyosarcoma of the uterus	7	1.99
Pseudomucinous cystadenocarcinoma of the ovary	6	1.71
Sarcoma of the endometrium	6	1.71
Carcinoma of the urethra	5	1.43
Teratoid (embryonal) adenocarcinoma of the ovary	5	1.43
Carcinoma of the vagina	4	1.14
Granulosa-cell carcinoma of the ovary	4	1.14
Adenocarcinoma of the tube	1	0.28
Squamous-cell carcinoma in dermoid cyst of the ovary	1	0.28
	351	100.00

TABLE 3.—DISTRIBUTION OF CANCER OF THE FEMALE GENITAL TRACT ACCORDING TO ORGANS

Organ	Cases	Percentage
Cervix	156	44.44
Body of the uterus	118	33.62
Ovary	60	17.10
Vulva	7	1.99
Urethra	5	1.43
Vagina	4	1.14
Tube	1	0.28
	351	100.00

TABLE 4

		Per-centage
Number of individual patients admitted to the Gynecological Service from September 1, 1932 to January 1, 1940	7 009	
Clinic of incidence of ovarian cysts and tumors	1 164	16.60
	7,009	
Clinic incidence of cancer of the female genital tract	351	5.00
	7,009	
Clinic incidence of cancer of the ovary	60	0.85
	7 009	

TABLE 5.—AGE INCIDENCE IN SEROUS CYSTADENOCARCINOMA

Decade	Cases	Percentage
21-30	1	2.3
31-40	3	6.8
41-50	15	34.1
51-60	18	40.9
61-70	6	13.6
71-80	1	2.3
	44	100.0

disease of middle life effecting its destruction in those two decades of a woman's life when she is undergoing one of her most important biologic transformations. The plea that is so often made for routine physical examination during this critical period is not repeated in vain, nor can it be too emphatically impressed

TABLE 6—SEROUS CYSTADENOCARCINOMA, 44 CASES*

Treatment	Cases	Dead	Average Duration of Life in Months	Alive
Operation (extirpative) followed by x-ray therapy	23	18	16	5 (1 (7 yr and 5 mo) 4 (averaging 11 mo.) 2 (30 mo and 5 mo.)
Operation (exploratory) followed by x-ray therapy	7	5	9	
x-ray therapy preceded by exploratory and followed by operation (extirpative)	8	7	17	1 (12 mo)
x-ray therapy preceded by paracentesis	3	3	2	0
Operation alone	3	3	1	0

*There were 8 cases in whom x-ray therapy was considered inadequate.

upon the physician that the most scrupulous pelvic examination must always be recorded, irrespective of how relevant or irrelevant is the rest of the examination and history, particularly her menstrual history. The earliest detection and investigation of pelvic masses, especially ovarian masses of any size, with prompt and complete excision where indicated, are the factors that will bear most fruit if we are to improve the outcome of the patients ultimately succumbing to cancer of the ovary.

All but 3 of the 44 cases of serous cystadenocarcinoma underwent some form of laparotomy. On 29 occasions generalized carcinomatosis was noted with gross evidence of metastasis to the omentum, rectum, colon, tubes, uterus, liver, or lungs in various cases. It is obvious that such hopeless findings in so many of our patients must have accounted for the poor results that will be considered later. Fixed and adherent unilateral or bilateral ovarian masses with or without a ruptured capsule but without gross evidence of carcinomatosis or metastasis were observed in 9 cases. A well-encapsulated tumor was found free in the abdomen in 6 patients, 5 of whom had unilateral tumors, 1, bilateral. Abdominal ascites was present in 21 cases and in 6 additional ones was accompanied by hydrothorax. The tumor was found to be unilateral in 8 cases (18.2 per cent) and bilateral in 36 (81.8 per cent).

Treatment

The manner in which our patients with serous cystadenocarcinoma were treated varied. As indicated in Table 6, a course of x-ray therapy was combined with extirpative surgery or exploratory laparotomy, or both, in 38 cases. They, as well as their results, are separated into three main groups. The first group includes 23 patients in whom roentgen-ray therapy was preceded by complete or partial surgical removal of the tumor and pelvic organs. Eighteen patients in this group died with an average duration of life lasting sixteen months. Survival in all in-

stances is computed from the time treatment was initiated. Five patients are alive 1, seven years and five months, and the remaining 4 average, to the present time, eleven months' survival. The second group consists of 7 patients who had an exploratory laparotomy followed by x-ray irradiation. A generous biopsy of the primary tumor or of a metastatic nodule was obtained in each case at the time of laparotomy. Practically all of the cases in this group were inoperable. Five are dead, with an average survival of nine months, whereas 2 are still living 1, thirty months, the other, five months. The third group comprises 8 patients whose x-ray therapy was preceded by an exploratory laparotomy and then followed by an operation in which some part or all of the pelvic organs and the tumor were removed. Unquestionably, the x-ray rendered operable a good part of previously inoperable cases in this group. Seven of them have died, with an average duration of life lasting seventeen months, and 1 is still living twelve months. X-ray irradiation was given to 3 hopelessly inoperable cases subsequent to paracentesis, 2 of which died before adequate irradiation could be completed and the other dying two months after adequate dosage was administered. Finally, there were 3 patients who did not survive the initial surgical procedure. They succumbed to postoperative complications—2 died of pneumonia within two weeks and 1 died of pulmonary embolism a month after the operation. They may be regarded as constituting an operative mortality of 6.8 per cent.

X-ray therapy to patients with cancer is outlined for each individual patient, and it is the happy and close cooperation of our Radiology Department that makes it possible to plan for the patient's best advantage. The size and number of portals and the total dosage that is administered depend upon the size and condition of the patient and the extent of the involvement of the disease in the pelvis and the abdomen. In general, x-ray therapy is administered to patients with ovarian

cancer as follows four to six portals of entry varying in size from 150 to 225 sq cm are employed, 200 r (in air without backscatter) are given daily to each of two portals, and the portals are rotated in order until each one has received a total of from 1,800 to 2,400 r. The accompanying physical factors used are 200 kilovolts, 1.0 mm copper plus 1.0 mm aluminum filtration and 50 to 70 cm skin target distance. A total dose of 1,800 r, or over, per portal is considered adequate. In our series, 8 patients received inadequate treatment.

The current belief that surgery combined with x-ray irradiation is the most satisfactory and beneficial method at our disposal to treat cancer of the ovary or that every patient operated upon for ovarian cancer should be given postoperative irradiation, although generally true, is much too inclusive and needs to be qualified. The fact that early and complete excision of any type of tumor by surgical operation continues to be the most desirable path to follow in the field of treatment does not require elaboration. Nor can it be denied that roentgen-ray therapy with its associated improvement of technic and equipment is an indispensable palliative measure and does prolong life. However, when one does contemplate the use of x-ray irradiation with surgery, it would appear to be of the greatest importance to take cognizance of the type or kind of tumor of the ovary that is being treated, as well as the stage of its progression and involvement. Much is yet to be learned of the effect of x-rays on the various types of ovarian cancer. If we consider the cases of serous cystadenocarcinoma in our series, the results as shown in Table 6 fail to reveal striking advantages in the three main groups already referred to. True, the number of cases is too small to draw any final conclusions and, in addition, it should be recalled that the greater number of our patients did not appear for relief and treatment before the disease was well advanced. Nevertheless, there is substantial positive evidence in the data pertaining to the patients who have died of serous cystadenocarcinoma to support the following inference. While one considers the fact that in the far-advanced cases, 50 per cent of the time, the element of pain was introduced as frequently as it was relieved, that over 40 per cent of the patients more than mildly complained of some of the adverse effects of radiation (diarrhea, dysuria, nausea, anemia), that abdominal distention from ascites made its reappearance in some cases

sooner than anticipated, and that the duration of life was only slightly, and so often only painfully, prolonged, one wonders whether the use of the roentgen ray in such cases really can be considered palliative. From our experience one has to infer that it is not.

On the other hand, where there is complete excision of a tumor that is grossly well encapsulated and free or only adherent to adjacent structures without evidence of metastasis, or where the primary ovarian cancer is completely extirpated with total or partial removal of local metastasis, postoperative irradiation is of the greatest value and comfortably prolongs the patient's life for a considerable period of time. There were 6 patients in our series who had presumably well-encapsulated serous cystadenocarcinomas lying free in the abdomen. 5 with unilateral tumors and the other with bilateral ones. They were operated upon, the tumors and the pelvic organs were removed, and they all had adequate postoperative radiation. Five of these patients succumbed as a result of recurrences, the average duration of life being three years and three months. The sixth patient is still living after two and one-half years without evidence, so far, of any recurrence.

That postoperative irradiation proved beneficial in the management of these patients, even though there is no five-year survival among them, one has no refutable argument to advance, since our series lacks the group of patients that would run parallel for comparison—that is, patients operated upon under the same conditions but not subsequently treated by x-rays. There are statistical reports representing the collected and individual experiences of other clinics which show that adequate postoperative x-ray irradiation greatly improves the outcome of patients treated for ovarian cancer when compared to those simply receiving surgical treatment.

Mortality

Table 7 demonstrates the outcome of 60 cases with ovarian cancer according to year and the kind of tumor. Not enough time has elapsed for final deductions, but it is apparent from the small number of patients among the living that little can be hoped for by way of improvement. As it is, the mortality rate for the entire series is 78.3 per cent and, if the year 1940 is excluded because of its recency, it rises to 83.3 per cent. For serous cystadenocarcinoma the mortality

TABLE 7*

Year	Serous Cystadenocarcinoma			Pseudomucinous Cystadenocarcinoma			Teratoid Adenocarcinoma			Granulosa-Cell Carcinoma			Squamous-Cell Carcinoma in Dermoid		
	No	Dead	Alive	No	Dead	Alive	No.	Dead	Alive	No	Dead	Alive	No	Dead	Alive
1932	1	1	0												
1933	4	3	1†												
1934	4	4	0												
1935	7	7	0							1	1	0			
1936	2	2	0				1	1	0						
1937	2	2	0	2	1	1	2	1	1						
1938	6	5	1	2	2	0				1	1	0			
1939	7	5	2	2	1	1	2	2	0	1	1	0	1	0	1
1940	11	7	4							1	0	1			
Totals	44	36	8	6	4	2	5	4	1	4	3	1	1	0	1

* All 60 cases—dead 47 or 78.3 per cent alive 13 or 22.7 per cent Serous cystadenocarcinoma 44 cases—dead 36 or 81.8 per cent, alive 8 or 18.2 per cent. Excluding the year cases in 1940 All cases—dead 40 or 83.3 per cent alive 8 or 16.7 per cent. Serous cystadenocarcinoma dead 27 or 87 per cent alive 4 or 13 per cent.
† Only 1 patient a five-year survival.

TABLE 8—AGE INCIDENCE IN THE 13 PATIENTS WITH HISTOLOGICALLY BENIGN (PAPILLARY) SEROUS CYSTADENOMA

Decade	Cases	Percentage
21-30	3	23.1
31-40	5	38.4
41-50	2	15.4
51-60	0	0.0
61-70	3	23.1
	13	100.0

is 81.8 per cent and, again excluding the year 1940, it rises to 87 per cent

Consideration of a Special Group

At this point I should like to consider the 13 patients with histologically benign papillary serous cystadenoma. This group displays a more encouraging picture. The predominant complaints, just as in the definite cancer group, were enlargement of the abdomen (7 cases) and pain in the lower part of the abdomen (5 cases). A striking difference in the history of these patients as contrasted to those with carcinoma was that the enlargement and distention of the abdomen occurred more rapidly or within a shorter period of time—respectively, two to four months as compared to one to two years. Laparotomies were performed on all patients, and in every case complete removal of the primary tumor was possible. The tumor was unilateral in 3 cases (23.1 per cent) and bilateral in 10 cases (76.9 per cent). Bilateral ovarian tumors with the uterus were removed in 8 patients, without the uterus, in 2 of them. Extirpation of a unilateral tumor alone was effected twice on the left side and once on the right. A ruptured capsule, with papillary growths breaking through the surface, was found in 9 cases, adhesions to adjacent structures, in 8, ascites, in 4, and peritoneal implants, in 2. In 4 patients, a well-encapsulated tumor was found free in the abdomen. Adequate postoperative x-ray irradiation

was administered to 9 patients. Four cases had no x-ray therapy, 3 because of their comparatively old age (65, 66, and 67 years) and 1 because she was thought to be too young (aged 29 years). One finds a 30 per cent five-year survival in this group. Of the greatest importance is the fact that these patients are as closely followed as the cancer patients and that up to date they are all alive and in good condition, with negative pelvic findings as well as without evidence of recurrence. An interesting observation is found in Table 8 demonstrating the age incidence. Here, the majority of cases, 61.5 per cent, has shifted to the two earlier decades when contrasted to the period between 40 and 60 years of age in the cancer group.

It was stated previously that inasmuch as these were considered histologically benign cases of papillary serous cystadenoma it was not deemed justifiable to include them in the malignant group, even though about 70 per cent had clinical evidences that could be interpreted grossly as characteristic of carcinoma. The timidity of the pathologist and clinician to assume the responsibility that the lesion was entirely benign clinically as well as histologically often prompted the recommendation for postoperative x-ray irradiation as though it were malignant.

This group of patients will indeed prove to be the most interesting to follow, for only time will disclose the accuracy of the histologic interpretation and of the good prognosis that has been associated with the patient.

Histopathology

A separate discussion of the histopathology of the various types of ovarian cancer considered is not permissible within the scope of this paper. However, special attention is directed to a consideration of the papillary serous cystadenoma because of its predomi-

nance in the cancer group and because of the implications it carries in the special group where it has been interpreted as histologically benign.

That the histologic distinction between a benign and cancerous ovarian cystadenoma, especially the papillary type, is not infrequently difficult is universally admitted. In general, extremely few errors in diagnosis are made in the interpretation of the well-recognized morphologic patterns that characterize the unequivocal histologically benign and malignant papillary serous cystadenoma. Nevertheless, it seems obvious that more effort should be invested in an intensive study of the histologic variations of this type of tumor, particularly the more complex variations of the apparently benign type that is so frequently designated as "potentially malignant" or "of low-grade malignancy." Moreover, a correlation of the microscopic evaluation should always be made with the pathologic anatomy found at the time of operation and with the clinical course of the patient. Whether a papillary serous cystadenoma of the ovary is small or large, unilateral or bilateral, whether the capsule is intact or has been penetrated, whether or not there is dissemination of the growth by metastatic implants to the surface of the pelvic organs and of the peritoneal cavity, whether there is ascites or not—these are all important factors that must be considered and properly weighed, but they do not ultimately determine whether the neoplasm is benign or not.

In the final analysis, for the greater majority of cases, it is the correct interpretation of the histologic picture which will correspond to the outcome of the disease. What one sees under the microscope, and the exact interpretation of it, is still the most valuable criterion upon which prognosis and subsequent treatment should be based. Indeed, the best trained pathologist and clinician is misled occasionally and learns that what was thought to be a benign process eventually turned out to be malignant. But the error in this direction is negligible when one considers how often a benign process is diagnosed carcinoma or sarcoma and how such a misinterpretation so often vitiates the "better" results reported in the treatment of cancer of the ovary. Likewise, the same misinterpretation credits the beneficial palliative effect of x-ray therapy with more than it deserves.

The morphologic pattern of the benign papillary serous cystadenoma in its simplest

form is reduced to broad and short connective tissue stalks lined by a single layer of cuboidal or low columnar epithelial cells many of which are ciliated. The nuclei are uniformly ovoid and mitosis is never seen. Invaginations into the connective tissue form simple cystic spaces and glands lined by the same epithelium.

With growth and proliferation the papillary processes elaborate into longer and finer connective tissue stalks continuing to support, for the most part, a regular and single layer of serous epithelium. Parallel to the papillary development, the glandular elements become more numerous so that the structure appears more cystic with a reduction and displacement of the connective tissue. Yet, any actual invasion or break in the continuity of the basement membrane supporting the epithelium is not to be seen.

The branching becomes more complex and develops into a luxuriant papillary growth in which the broader, as well as the thinner, supporting stalks may be lined by a double or triple layer of epithelium instead of a regular single layer. Absence of mitotic figures is still noted and, whereas the cells in the stratified areas may appear a little compressed and spindle-shaped with a more elongated nucleus, cellular and nuclear polymorphism is not so definite that one can promptly classify it as malignant. It is fair to assume, as Brakemann² points out, that the capacity of the tumor to grow more rapidly at this stage accounts for its breaking through the capsule and for its tendency to form implantation metastases.

Beyond this point a few mitotic figures make their appearance, and definite changes in the form of the cells and the nuclei are established so that the transition may be reached and a papillary serous cystadenocarcinoma may develop. Where one is to draw the line between a benign process and early malignancy is still difficult, but it is felt that if more effort is expended in attempting to make as correct an interpretation of the histologic findings as possible it will enable one to understand to a better advantage the clinical course and outcome of the disease.

No attempt has been made to classify the serous cystadenocarcinomas into papillary, semicystic, solid, medullary, or scirrhus, since it is presumed that they have a common origin and represent various forms and stages in development of the same process.

Conclusion and Summary

The evaluation of our experience with cancer of the ovary is revealing in several interesting ways. Undertaken as a preliminary study it has proved of some value in provoking points for further discussion and serious thought. Most striking is the fact that the outcome of our patients has been extremely poor and that a way must be sought to improve our end results.

The determination of the incidence of ovarian cancer, its ratio to benign primary neoplasms of the ovary, and other related comparisons and percentages as calculated for this clinic are only of comparative value but do serve the purpose of substituting fact for impression for those who are statistically inquisitive. Sixty cases of ovarian cancer were reviewed and since 73.3 per cent or nearly three-fourths were diagnosed as serous cystadenocarcinoma, most of the analysis was confined to the 44 cases included under that category.

A summary of the clinical data reveals that the symptomatology, age incidence, and physical and pathologic findings generally conform to the observations that have been repeatedly made. Until some clue or sign that will disclose the early development of ovarian cancer can be made available, it is urged that women between 40 and 60 years of age submit themselves periodically to routine pelvic examination. One is aware that this plea is repeatedly made, but it always bears emphasis and the present study indicates, just as others in the past have, that the investigation of pelvic pathology in its earliest stages is the most important factor that will contribute to the improvement of the outcome of cancer, especially ovarian cancer.

The results in treatment, though disappointing, are not surprising when it is learned that most of the patients presented themselves in the more advanced stages of the disease. Surgical operation with early diagnosis and complete extirpation, or with the removal of the primary tumor and as much of the local metastasis as possible, combined with adequate postoperative x-ray irradiation, is the most hopeful procedure at our disposal in the management of patients with cancer of the ovary. Although the palliative effect of x-ray irradiation is appreciated and its use generally recognized as indispensable, from our experience in the inoperable cases and certain far-advanced cases of serous cystadenocar-

cinoma it is concluded that x-ray therapy has little, if any, beneficial remedial effect. Not only the stage of involvement of the disease should be considered when the administration of roentgen-ray therapy is contemplated but also the type or kind of ovarian tumor. Our knowledge of the consequences of x-ray upon the various types and kind of ovarian tumors is incomplete.

The mortality rate is high—78.3 per cent for all the cases and 81.8 per cent for serous cystadenocarcinoma. If the year 1940 is excluded because of its recency, the rates rise to 83.3 and 87 per cent, respectively. Indeed, the computation of these percentages covers a short and most recent period of time but, with only a single patient among them a five-year survival, there is little to expect by way of improving the outcome of the patients in this series when it will be reconsidered five years hence.

The group of patients that will be followed with the greatest interest is the one of 13 patients who are considered to have histologically benign papillary serous cystadenoma. They are a special group inasmuch as the diagnosis was qualified and most of them were treated as though the lesion were cancer. Still it did not appear justifiable to include them in the definite cancer group, inasmuch as it is believed that such cases just now would vitiate the results. Only the passing of time with periodic review of the tumors' histology and vigilant follow-up of the patients' clinical course will bring forth a sound evaluation of the true nature of their activity.

A discussion of the histopathology places emphasis on the thought that a correct interpretation of the histologic findings is the best criterion upon which to base the clinical course and outcome of the patient. No difficulty is encountered by the pathologist in diagnosing the unequivocally benign and malignant tissues. However, particularly in the papillary serous cystadenoma, a better understanding of the transition stages is encouraged, since a greater number of the more complex variations of the relatively benign type is often diagnosed malignant. Misinterpretation in the opposite direction is less frequent.

In closing, it is appropriate to say that as we confront the problem of cancer one finds eternal optimism reigning over an undercurrent of pessimism. "The facts are here, a medical Newton must come and arrange them for us," and to quote Leitch: "A future generation, knowing surely the cause of can-

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Discussion

Dr Ward L Ekas, Rochester, New York—It has been a great pleasure to hear the interesting paper presented by Dr Marchetti. A study of the 69 cases of ovarian cancer occurring in our clinic revealed essentially the same results as you have just heard

The symptoms of this dreaded disease appear late and are insidious in their appearance. There are no symptoms in the early stages of this disease, and it is not unusual to see a patient late in the disease who has had symptoms for no longer than two to four weeks. Indeed, 40 per cent of our cases gave a history of symptoms for a period less than four months. Gastrointestinal symptoms occur as early as any, they are in many forms, such as nausea and vomiting, flatulence, distention, sense of fullness, and particularly constipation, which is seen in a rather large percentage. The constipation is usually described as an increasing constipation. Pain occurred in over half of the cases and varied from an uncomfortable heavy sensation to sharp and knifelike. Vaginal bleeding is not too commonly seen but does occur in a certain percentage of the cases. Since many of the patients are past the menopause, it is significant, when it does occur, in warning the patient that all is not well. At times, the patient discovers a tumor mass in the lower part of the abdomen. Grouping the symptoms, one can say that many of them are those of malignancy in its last stages. Ascites occurs frequently.

In our group of cases, 29 were carcinoma, 31, malignant papillary cystadenoma, 5, adenocarcinoma, 3, embryonal or of the mixed cell type, and 1, a malignant pseudomucinous cyst. Thirty-eight of the cases had operative removal of the tumor, and in 20 more cases an exploratory laparotomy or paracentesis was done.

In the treatment it would seem that preoperative x-ray is rarely indicated, for it seems better to make a diagnosis before resorting to x-ray therapy unless it is a hopeless case. Operative removal, of course, is to be done in all cases in which it is possible. Paracentesis may be neces-

sary in not a few cases before laparotomy, and in some of the cases malignant cells may be found in the fluid.

Subsequent x-ray therapy should be given, although the results have been anything but encouraging. It was used in only twenty-four of our cases. Since the depth dose is the important factor, we use a 70-cm. skin target distance and a 220-kilovolt peak. A filter of 0.5 mm of copper and 1.0 mm of aluminum is used. Six portals are used, giving two per day of 150 to 225 sq cm. The dose per portal is 1,600 r in air. The patients are measured anterior-posteriorly and laterally so as to try to arrive at a depth dose in the parametrial region, estimated at perhaps 2,000 to 3,000 r.

There have been 4 five-year cures in our series. Two cases had tumors of the solid mixed cell type, 1, carcinoma in a ruptured cyst, a fourth, a malignant papillary cystadenoma. A fifth patient, who had carcinoma, is alive and apparently well after four and one-half years. Most of the patients were dead within a year after being first seen.

One of the objectives noted was to secure, if possible, a better approach to the problem of the future. This to my mind may be done in two ways. First, women must be educated to the need of a periodic health examination. With the cancer teaching they are already becoming more and more cancer conscious and are coming to the doctor for more routine examinations. Already in our clinic a limited well-woman clinic has been started for the purpose of semi-annual breast and pelvic examinations.

The second way is to emphasize to the medical student during his school years the need of a routine pelvic examination. This means repeated and frequent pelvic examinations under supervision and description of the findings. It is our practice in teaching to do just this thing so that our graduates may feel a fair degree of confidence in interpreting a pelvic examination.

Furthermore, every doctor should be taught to consider a pelvic examination as important a part of a physical examination as the heart or lungs. Such an examination should include the use of a vaginal speculum to view the cervix. Particularly those patients over 30 years of age should be examined. Every sizable ovarian tumor should be removed and the small ones watched, if they do not disappear in a short time, they, too, should be removed. While some small benign cysts may be removed, the more important potentially malignant or malignant ones will be removed.

A THOUGHT

It would be tragic if people had to wait as long for the doctor to come as he waits for his money.

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GOOD NEWS

Receptionist—"The doctor is at liberty now."
Patient—"Well, well. I didn't even know he was in jail."
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Conclusion and Summary

The evaluation of our experience with cancer of the ovary is revealing in several interesting ways. Undertaken as a preliminary study it has proved of some value in provoking points for further discussion and serious thought. Most striking is the fact that the outcome of our patients has been extremely poor and that a way must be sought to improve our end results.

The determination of the incidence of ovarian cancer, its ratio to benign primary neoplasms of the ovary, and other related comparisons and percentages as calculated for this clinic are only of comparative value but do serve the purpose of substituting fact for impression for those who are statistically inquisitive. Sixty cases of ovarian cancer were reviewed and since 73.3 per cent or nearly three-fourths were diagnosed as serous cystadenocarcinoma, most of the analysis was confined to the 44 cases included under that category.

A summary of the clinical data reveals that the symptomatology, age incidence, and physical and pathologic findings generally conform to the observations that have been repeatedly made. Until some clue or sign that will disclose the early development of ovarian cancer can be made available, it is urged that women between 40 and 60 years of age submit themselves periodically to routine pelvic examination. One is aware that this plea is repeatedly made, but it always bears emphasis and the present study indicates, just as others in the past have, that the investigation of pelvic pathology in its earliest stages is the most important factor that will contribute to the improvement of the outcome of cancer, especially ovarian cancer.

The results in treatment, though disappointing, are not surprising when it is learned that most of the patients presented themselves in the more advanced stages of the disease. Surgical operation with early diagnosis and complete extirpation, or with the removal of the primary tumor and as much of the local metastasis as possible, combined with adequate postoperative x-ray irradiation, is the most hopeful procedure at our disposal in the management of patients with cancer of the ovary. Although the palliative effect of x-ray irradiation is appreciated and its use generally recognized as indispensable, from our experience in the inoperable cases and certain far-advanced cases of serous cystadenocar-

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FOLLOW-UP STUDY OF ARTHRITIC PATIENTS TREATED WITH ACTIVATED VAPORIZED STEROL

R. GARFIELD SNYDER, M D, F A C P, and WILLARD H. SQUIRES, M D, F A C P,
New York City

THE progress of a one-year follow-up of the original 23 cases of arthritis treated with Ertron and described in the *New York State Journal of Medicine*¹ will be reported briefly at this time. Although an extensive study on a group of 100 patients is now being conducted in our clinic, it is considered important at this time to record the roentgenologic and laboratory results, as well as the clinical progress observed during the past twelve months, in the original series of cases.

A detailed discussion of these cases appeared in the previous report,¹ and the reader is referred to the original table on page 710 of the May, 1940, issue of the *JOURNAL*. Data obtained during the past year is tabulated in the same manner and listed under the same case numbers as in the original report so as to show a complete record of each patient covering a period of from two to four years (Chart 1).

In the follow-up study of these patients the following factors received special attention: (1) toxicity, (2) blood changes, (3) weight, (4) radiographic studies, (5) results obtained in 23 cases of arthritis treated with activated vaporized sterol for a three-year period, and (6) permanence of improvement. A summary of each of these findings is presented in the following conclusions.

Clinical Findings

(1) *Lack of Toxicity*—The minor and infrequent toxic reactions to Ertron exhibited by the patients in this study were in sharp contrast to the more serious and frequent toxic reactions reported by Bauers and his associates² when they used large doses of vitamin D produced by ultraviolet irradiation of ergosterol under the Wisconsin patent.

The occasional signs of intolerance that have followed the use of Ertron have all been temporary. These disturbances included nausea, vomiting, moderate diarrhea, and frequency of urination. To protect the patients against these gastric symptoms they were instructed to take Ertron with a glass of milk. When a slight nausea developed it

usually yielded to either rhubarb and soda or sodium bicarbonate. The most severe complications resulting from the use of Ertron disappeared within a week or ten days after withdrawal of the drug.

The appearance of gastric distress was not found to be consistent with any increase of the blood calcium as has been claimed by others. In fact, some of the cases in which there was a temporary elevation of blood calcium showed no signs of intolerance, while those who did have digestive upsets had normal blood calcium values.

(2) *Blood Calcium Changes*—There is no consistent change in the blood calcium—some cases showing a fall, some a rise, and others no change. It is interesting to note that Case No. 4, who has taken 8 capsules daily for four years, still has a blood calcium of 10.6 mg. We consider from 10.0 to 11.5 mg per hundred cubic centimeters as being normal. In this connection, one of us (R. G. S.) recently encountered a blood calcium of 16 in a perfectly normal woman suffering from a mild attack of osteoarthritis of the knee whose previous medication had been salicylates.

Blood sedimentation rate—The sedimentation rate has not been of much value in indicating the progress of these cases. In some with the greatest clinical improvement the sedimentation rate remained unchanged or has even increased. In other cases with the sedimentation rate approaching the normal, the patient's degree of improvement has been slight. Other data on blood chemistry and blood counts reveal no consistent changes that can be correlated with the progress of the disease.

(3) *Weight*—Most of the cases showed an increase in weight. This is probably due to some quality in the Ertron which in massive doses makes optimum nutrition possible, especially in the undernourished rheumatoid type of arthritis. There are several research projects in large universities attempting to explain this question at the present time. Just how Ertron acts we do not know, but one point is obvious from the clinical findings. It does seem to act as a powerful "tonic." One of the early signs of Ertron administra-

From the Arthritis Clinic, Hospital for the Relief of the Ruptured and Crippled.

Case No	Follow-Up X-Rays*	Follow-Up Blood Chemistry	Cal- Phos- cium phorus	Follow-Up Sedimentation Rate	Present Joint Condition	Present Physical States	Remarks	Results
1	No further change. More flexion, contraction	10	3 27	2	Still further diminution of swelling and pain Increased functional activity	Able to do all her housework	No medication in seven months, then recurrent pains which disappeared with resumption of medication	Good
2	Patient moved to Washington				Dropped from clinical roll			Eliminated from this study
3	Suggestion of early ankylosis of wrists	9 6	3 25	50	Disappearance of pain and soft tissue swelling	Able to do housework including washing	Had three relapses which were traceable to emotional stress due to illness in family All symptoms disappeared each time with continuation of Ertron therapy	Slight improvement
4	Original films show marked destructive changes in hands and wrists. Follow-up films identical	10 6	2 56	25	Disappearance of pain and stiffness	Full time employment Drives delivery truck	On Ertron three years with maximum dose of 8 capsules daily No elevation of blood calcium	Excellent
5	Further destruction of distal interphalangeal joints	10	3 03	10	Unchanged	Difficult to evaluate as patient refused to co-operate	Uncooperative. Medication stopped Patient refused to attend Clinic regularly	Eliminated from this study
6	No further changes in films	9 4	2 61	36	Unchanged	Difficult to evaluate as patient refused to co-operate	Absent from Clinic four to five months at a time	Eliminated from this study
7	No further changes in films	9 5	3 09	10	No pain or swelling	Normal function of all joints	No medication in one year Patient free from rheumatic pains	Excellent
8	No further changes in films	10 3	2 94	18	Normal	Does all own housework	No medication in eight months. Free from all rheumatic symptoms	Excellent
9	Decreased bone density Diminution of soft tissue swelling	11	3 09	17	Occasional stiffness. No pain	No pain. Finishing high school	No medication in one year Normal appearance and functional activity	Excellent
10	No further changes in films	9	2 45	12	Less stiffness	No limitation of activity	Still under medication and continues to improve	Good
11	No further changes in films	13 8	2 56	6	Marked diminution of pain, stiffness and swelling	Normal functional activity	No medication in past six months	Good
12	No bone changes Less soft tissue swelling	8 6	3 85	94	Less pain and swelling	Improved functional activity Able to play golf last summer	Blood calcium lower despite large doses of Ertron	Slight improvement
13	Calcareous deposits in soft tissues in fingers	12 3	4 69	138	Unchanged	Less anemic. Performs all household duties	Sedimentation rate remains high	Slight improvement
14	Patient working and unable to attend Clinic for follow up x-rays and blood studies Sent letter answering our questions				Less swelling	Able to work	States appetite is good. General improvement without medication in eight months	Good
15	No further changes in films	10 6	3 85	27	Less swelling	Very active Free from pain Plays all children's games	Patient weighs only 48 pounds due probably to faulty diet and to great amount of activity Has taken 6 capsules of Ertron daily yet blood calcium shows a fall	Excellent
16	Less soft tissue swelling Lime content of bones higher	10 5	2 75	18	Absence of pain, stiffness and swelling Appears normal	No limitation of motion Performs all household duties	Normal appearance and normal activity in spite of no medication in two months	Good
17	Osteoporosis and rarefaction seen May 5 1939 not present on December 11 1940	10 5	2 36	9	Absence of pain stiffness and swelling Appears normal	No limitation of motion Performs all household duties	Normal appearance and normal activity in spite of no medication in four months	Excellent

[Continued on page 2334]

CHART 1 (Continued)

Case No	Follow-Up X-Rays*	Follow-Up Blood Chemistry	Follow-Up Sedimentation Rate	Present Joint Condition	Present Physical Status	Remarks	Results
18	Patient unable to attend Clinic for follow-up x-rays and blood studies Sent letter answering our questions			No pain or swelling Occasional cramps in fingers	Improvement in systemic condition. Increased functional activity	Varicose ulcer prevents the patient from working at the present time	Slight improvement
19	Patient working and unable to attend Clinic for follow-up x-rays and blood studies Sent letter answering our questions			Less pain and swelling Joints swell when weather changes	Able to work	Improved functional activity Carrying on normal regular routine in spite of no medication	Good
20	No further changes in films	10 0	3 43	38 Unchanged	Some pain in shoulders and right ankle	Patient shows slight improvement only Able to work but has some pain	Slight improvement
21	No further changes in films	10 5	2 10	14 No change	No change	Very emotional and has preconceived ideas about what various forms of therapy will do Discontinued Ertrion	Failure
22	No further changes in films	9 2	2 36	18 Less swelling Much more motion	Able to dance	Has gained 30 pounds while on this therapy	Excellent
23	No previous x-rays for comparison	13 8	4 38	145 Unchanged	Becoming weaker No improvement probably due to some other systemic condition. Age of patient is 62	This case developed a severe anemia and study is being conducted to ascertain its cause. An undiscovered malignancy is suspected	Failure

* Due to lack of foresight on our part we did not take the precaution of using absolutely the same technic in all our cases in the first series, but the results must be fairly accurate since all the plates were taken by the same technicians and interpreted by the same radiologist. The notes on the follow-up of the x rays are a short abbreviation by us of the reports of the radiologist.

tion is a markedly improved sense of well-being and a definite improvement in nutrition.

(4) *Radiographic Studies of the Bones and Joints*—In our experience the x-ray studies of the bones and joints are of no definite value in determining the clinical progress of the disease. Even over a period of four years significant changes are rare. The bone consistency and joint spaces remain practically unchanged. Under this form of treatment a diminution of soft tissue swelling is often seen in the follow-up films. In order to compare accurately the follow-up films with those obtained previously, the films should be taken with the same technic and interpreted by the same radiologist.

Many clinicians in the past have attempted to use recalcification of the arthritic bones as a measure of improvement following Ertrion therapy, but in our experience there is no justification for this claim.

(5) *Clinical Results Obtained in 23 Cases of Arthritis Treated with Activated Vaporized Sterol over a Three-Year Period*—We appreciate that no definite conclusions can be drawn as to the relative therapeutic value of any medication on the results obtained in only 23 cases. The results we are reporting may not be considered by some to be brilliant

when they are compared with the more glowing reports of results obtained by many other forms of treatment for arthritis. Most of these latter reports, however, include the results obtained in early cases—that is, cases of less than one-year duration. It is our contention that the inclusion of these early cases in any scientific report makes the report of questionable value, because many of these early arthritic cases can be alleviated by almost any form of treatment. We feel, however, that our results are in reality better than the figures would indicate, because all of our cases had suffered from their arthritis for from two to five years before receiving Ertrion treatment and each had proved to be resistant to most of the accepted forms of therapy prior to the administration of Ertrion.

It is a well-known fact among the medical profession that it is most difficult to be intellectually honest when trying to evaluate the clinical results obtained in any group of cases treated by oneself. In order to eliminate this factor as much as possible we selected cases that had been unsuccessfully treated by other forms of medication. As a further safeguard the patients were all treated by one of us (W. H. S.), but the end results were observed and recorded by the senior author.

(R. G. S.), who had nothing to do with the treatment. The clinical progress of many of the cases was also observed by members of the staff, and in no instance was there any serious disagreement with our clinical judgment in reporting the results obtained.

Psychic effects The influence of emotional stresses on the arthritic process has been receiving a vast amount of attention during the past few years. Because of this, it was necessary to rule out any beneficial influence that might be brought about by the psychic factors incident to the patients coming to a group of specialists for a new form of treatment. At the present time this is being studied in great detail in one of our large universities. A preliminary study of this factor by Dr. Reed³ of the University of Illinois indicates that the beneficial effect following Ertron therapy is due to the Ertron and not to the psychic factors, because, when a placebo was substituted for the Ertron without the patient's knowledge, the patient invariably complained of increased pain and stiffness. If the placebo was used before Ertron therapy was started, then the patient showed no improvement until Ertron was administered. Furthermore, since the patients in our series have all been subjected to numerous types of therapy without any beneficial results, we feel that it is not likely that they would be enthused about another form of therapy unless they were definitely benefited by it.

We also appreciate that no one is warranted in arriving at a definite conclusion as to the efficacy of any new form of treatment until he has personally observed the cases treated for no less than a five-year period. In most of our cases the observation period has been at least three years.

(6) **Permanence of Improvement**—One of the most important questions to be answered is the permanence of the relief or cure—

whether or not relapses follow the cessation of the drug. Most of the patients during this follow-up period were able to return to their normal gainful activity either without any medication or on a small maintenance dose of Ertron.

The progress of each case is listed in Chart 1. Some cases who received no medication for varying lengths of time since Ertron therapy was stopped remained free of pain and other rheumatic symptoms. Other cases, especially those who had not received Ertron in adequate dosage for a sufficiently long time, state that the pains recurred when the medication was stopped but disappeared again when the Ertron administration was resumed. In some cases that suffered from recurrences, definite extraneous causes were discovered to explain these relapses. This phase of the subject will be taken up in detail in a future report.

Conclusions

1. We believe that Ertron is an agent that has definite value in the treatment of arthritis.

2. We feel that its use is not associated with any more danger than is usually encountered with other accepted forms of therapy if the medication is given under the advice and control of a physician.

3. It is too early to praise its relative value, but it is now being tried in other well-organized clinics. At the end of a five-year period we will be in a better position to appraise its clinical value more exactly.

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THE LONE SINNER

An evangelist, conducting a revival service in a small town, in the midst of one of his sensational sermons commanded all in the house who were paying their honest debts to stand up. Every man, woman, and child—with one exception—rose to their feet. The preacher then ordered them to be seated. "Now, let everyone not paying his honest debts stand up."

The lone exception, a careworn, albeit professional-looking individual in spite of his dingy,

frayed, last year's suit, slowly assumed a perpendicular position.

"How is it, brother, that you are the only one in this congregation who is not meeting his just obligations?" inquired the preacher.

"I am a physician," he answered meekly, "and most of the brethren are on my books, and—"

"Let us all join in hymn number 299," said the preacher hurriedly.—*Jackson County (Mo.) Medical Society Bulletin*

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors. The next report will appear in the January 1 issue and will concern "Hypnotics and Sedatives."

Management of the Menopause

DR. CHARLES H. WHEELER. The subject of this conference is the "Management of the Menopause." We thought this was a subject peculiarly appropriate for a conference for several reasons. In the first place, menopausal symptoms are among the commonest that the practitioner has to deal with, second, one does not find an adequate discussion of the subject in the standard textbooks of medicine and therapeutics, and, third, we are fortunate in having as a member of the staff of this hospital Dr. Ephraim Shorr, who is one of the pioneers in this field.

DR. EPHRAIM SHORR. If you will permit me I should like first to review briefly the pathophysiology of the menopause in order to indicate the bases for its therapeutic management. With regard to terminology, the menopause is, strictly speaking, the actual cessation of ovarian activity, whereas the climacteric is the period of transition resulting in this cessation. This may occur spontaneously or may be induced or accelerated by measures that depress ovarian function, such as radiation or by the removal of the uterus or ovaries or both.

The problems associated with this condition range beyond the age period of the actual transition and, indeed, may be present for many years thereafter. While the most important events at this time are the quiescence of ovarian activity and the reduction in the amount of estrogenic hormone available to the organism, many other significant changes occur at this critical period. It is likely that the pituitary and thyroid glands undergo some alteration in function. This is the period of the highest incidence of myxedema, and increased amounts of pituitary gonadotropic hormone appear in the urine. Other biologic changes also take place. The climacteric ushers in the decrescent phase of the life cycle of the organism. It is the age of senescence, and all the various processes of

aging are seen. Sclerotic vascular changes make their appearance, as well as other degenerative changes in the viscera, the skeleton, and the external structures of the body.

On the psychologic level there frequently occurs a profound reorientation of the woman's attitude toward her environment. Psychologic disturbances ranging from the psychoneuroses to the psychoses, of which involutional melancholia is an important example, make their appearance. Thus, it is a symptom complex in which psychologic, glandular, and other somatic changes participate, and any approach that pretends to completeness must bear all these factors in mind.

What brings the menopause about appears to be the gradual aging of the ovary which, as a result, becomes more and more resistant to the normal sequence of stimuli that bring about the menstrual cycle. This quiescence of ovarian activity is, of course, part of the normal sequence of events, and in the majority of women adjustment is adequate. About one-third of the women fail to make this adjustment, and a number of unpleasant symptoms, grouped under the term "menopausal syndrome," result.

There have been several hypotheses offered to explain the genesis of this syndrome. It has been suggested that these symptoms arise from the excessive production of the pituitary gonadotropic hormone, which acts to produce vasomotor and other disturbances. Another hypothesis is that the symptoms are a consequence of the lowered estrogen production. Neither of these hypotheses, to my mind, explains the etiology of the menopause syndrome, since there is no difference with respect to the amount of estrogenic hormone or urinary gonadotropic hormone in women with and without symptoms. There is nothing known with certainty of the factors that make one woman react so badly to these hormonal

changes and another adjust harmoniously, but it is becoming rather generally recognized that it is a psychobiologic problem in which the stability of the total personality is an important determinant. In this discussion I shall confine myself to a consideration of the hormonal aspects of the therapy of the menopause.

Before passing on to the specific treatment, I should like to stress the importance of this age period for the development of neoplasms. The climacteric, while frequently terminating quietly, is often a period of menstrual irregularity, both with regard to periodicity and flow. Every effort should be made with the help of the gynecologist to make sure that these irregularities are not associated with pathologic changes in the pelvic organs. Before initiating any hormonal therapy, it is wise to correct any inflammatory changes such as those so frequently found in the cervix and which may predispose to the development of carcinoma. The necessity for such precautions cannot be overemphasized.

There is almost no syndrome that is as bizarre and extensive as the menopausal syndrome. Certain classic symptoms are recognized as characteristic, and there are, in addition, a number of atypical symptoms that seem to be specifically related to ovarian insufficiency but which occur less frequently. The most characteristic and common is the hot flush, followed frequently by drenching sweats, dizziness, palpitation, and exhaustion.

There are various disturbances of the peripheral circulation which take the form of annoying paresthesias. Asthenia is frequent. Headaches are often so severe as to render the woman quite ineffective. Insomnia, increased nervousness, irritability, and a variety of gastrointestinal symptoms appear. Arthralgias and degenerative changes in various joints contribute to the picture. Senile atrophic changes in the genital tract may produce considerable local discomfort. On the behavior level the woman tends to become distressed, emotionally unstable, irritable, and given to weeping. She is inclined to withdraw more and more into herself, feel insecure, and become hypochondriacal, resentful, and suspicious. Other psychoneurotic manifestations may make their appearance or become exaggerated. The sexual life may wane in intensity, although occasionally this period is associated with increased sexual interest. Frank psychoses may be initiated.

In dealing with the hormonal aspect of the

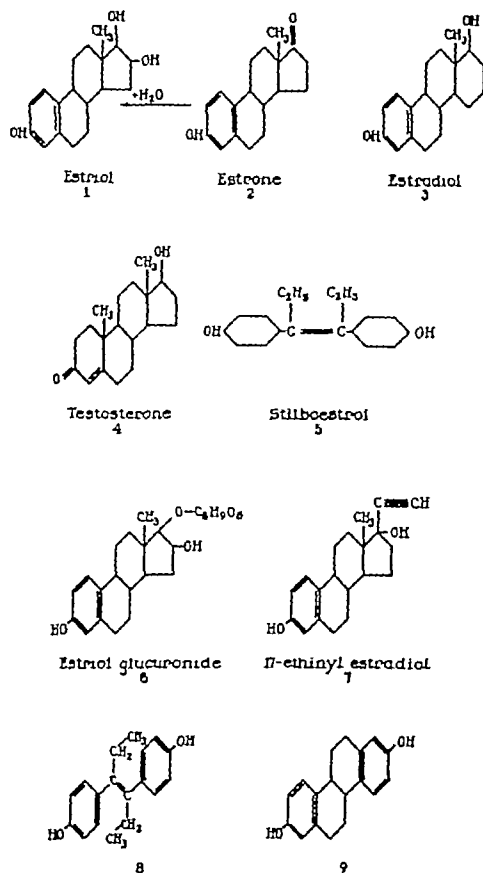


FIG 1

menopause syndrome we are the beneficiaries of a really remarkable advance in our chemical knowledge of the sex hormones acquired in the past decade. We are indebted to the chemists for making available a number of extremely potent estrogenic substances specifically related to the disturbances of the menopause. I have drawn on a chart (Fig 1) the formulas of the natural estrogenic hormones: estradiol, the dihydroxy estrin, estrone, the ketohydroxy estrin, and estrin, the trihydroxy estrin. Estradiol is very likely the form in which the hormone is first elaborated by the ovary and represents the most potent estrogen. Estrone and estrin are thought to be intermediary and degradation products, respectively, nevertheless, they possess estrogenic properties similar to estradiol. They have less activity per unit of weight, estrin being the least active. Later on, Dr Fishman will tell you something of the character

of these intermediaries and of the relation of these three estrogens

I have also included in Fig 1 the formula of testosterone, the most active male hormone, which, interestingly enough, has proved useful, although with definite limitations, in alleviating menopausal symptoms. Two synthetic estrogens—stilbestrol, which was synthesized by Dodds and his coworkers, and ethinyl estradiol—have also been included and will be discussed later.

Of the estrogenic hormones, estradiol and estrone are the ones most commonly used. Estradiol is usually conjugated either with benzoic or propionic acids to reduce the rate of hydrolysis in the body and so prolong its action. The use of estriol and estriol glucuronide has been almost entirely reserved for the oral route, since they have been observed to lose little of their potency by mouth in animals compared to their parenteral activity, whereas both estrone and estradiol lose a great deal of their potency (about 90 per cent) when given by mouth. However, we must not fall into error with regard to the relative efficiencies of these hormones when given by mouth. Although estriol, for example, loses little of its efficiency by mouth, its activity per unit of weight is so low that large amounts must be given orally to produce either symptomatic or estrogenic effects, and, although estradiol and estrone lose a good deal of their efficiency by mouth, full symptomatic and estrogenic effects can be achieved by taking this loss into account and adjusting the oral dosage. What one should bear in mind as the basis for the use of these hormonal preparations in the therapy of the human are the actual estrogenic requirements of the patient and the actual estrogenic activities of the preparation to be used.

At present there is considerable confusion in both these respects. With regard to the estrogenic preparations, there are a number of different units employed by different manufacturers. We are confronted with *international units* for estrone and estradiol benzoate, with *rat units* for a variety of estrone and estradiol preparations, with *day oral units* for estriol glucuronide, and with *active units* for estradiol given orally. No wonder the practitioner is confused in his choice of preparation and of dosage. Sooner or later these preparations should be standardized in terms of human activity, and such studies have been in progress in this laboratory for some time. We have found that the estradiol and estrone preparations have approximately

equivalent estrogenic activity in the human on the basis of the rat unit as determined by the biologic assay method of Allen and Dowsy, so that in substituting one for another it is safer to base such substitution on the rat unit rather than the international unit. With regard to the estriol preparations, as we would expect from the low estrogenic activity by weight, their usefulness in human therapy must await their being made available in far greater potencies than the preparations now obtainable, these have proved virtually useless in our hands.

As to the second factor, the human requirements, some progress is being made for setting up objective standards for dosage such as those available for the use of thyroid hormone in myxedema, cortical hormone in Addison's disease, and insulin in diabetes. A variety of methods exists for ascertaining, in addition to subjective symptoms, the effectiveness of estrogenic preparations. One may, for example, assay estrogenic hormone in the urine, giving enough hormone to produce the normal level of estrogens. One may obtain endometrial biopsies and look for evidence of a proliferative endometrium. One may analyze the urine for gonadotropic hormone, using as an end point the suppression of the excess excretion characteristic of the menopause. All of these procedures are time-consuming, laborious, and not free from trauma. The procedure used in this clinic is the vaginal smear method, which offers a simple and specific indicator of estrogenic activity and which may be obtained as often as desired with no trauma and trivial cost. I shall describe this method briefly.

Vaginal secretions are aspirated by means of a glass pipet to which is attached a rubber bulb, and the secretions are placed on a slide, fixed in alcohol and ether, and stained. A few photomicrographs (Figs. 2, 3, 4, and 5) illustrate a typical series of changes which takes place when a patient in the menopause is given adequate amounts of an estrogenic hormone.

The first is that of a normally menstruating woman and was obtained on the thirteenth day of the cycle at the time of the ripening of the follicle (Fig 2). It is composed exclusively of cornified cells that are large and flat and have small pyknotic nuclei. It is virtually free of leukocytes. This is the smear produced at the height of follicular activity and represents the maximal vaginal reaction that can be obtained with estrogens.

The next example is an atrophic smear of a

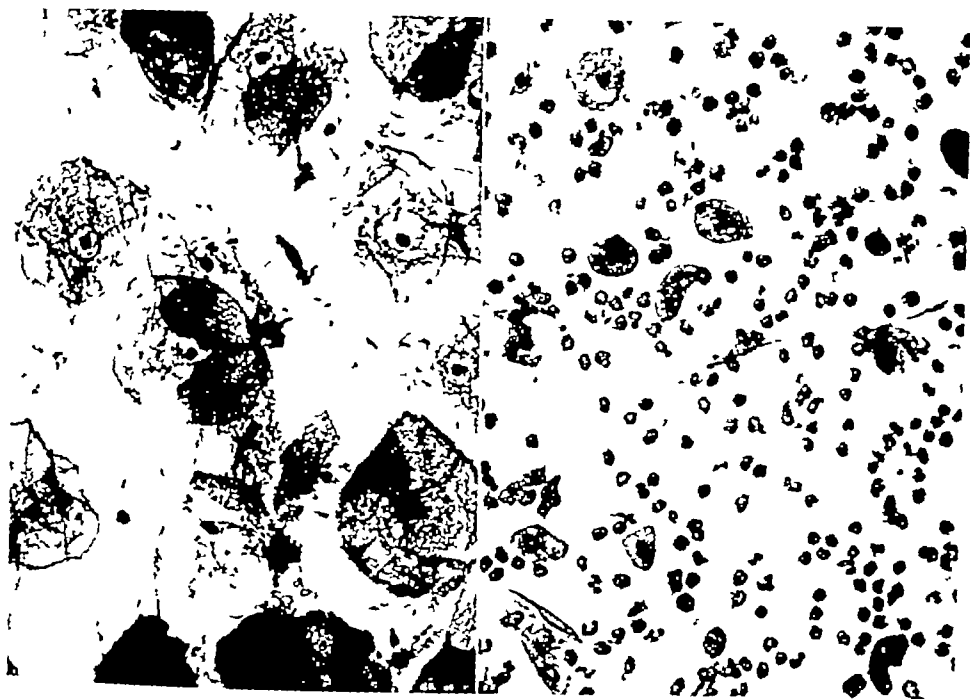


FIG 2

FIG 3

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FIG 2 Vaginal smear on the thirteenth day of a normal menstrual cycle just prior to ovulation. It consists almost entirely of large cornified squamous cells with small pyknotic nuclei and represents the peak of follicular activity [Illustrations from Papanicolaou and Shorr *Am J Obst & Gynec* 31 806 (1936)]

FIG 3 Vaginal smear of the atrophic type from an untreated menopausal castrate. It is composed almost entirely of leukocytes and of small round or oval "deep" cells with large nuclei. These arise from the exposed basal zone of the atrophic vaginal epithelium. This picture is indicative of the absence of estrogenic activity

menopausal castrate and consists largely of small round or oval cells shed from the atrophic vaginal epithelium (Fig 3). It contains, in addition, numerous leukocytes and much debris. In the succeeding smears the sequence of changes brought about by adequate estrogenic therapy is shown. At first, there is an exudation of mucus, a disappearance of the deep cells, and a growth in the size of the epithelial cells (Fig 4), which reach the final stage (Fig 5) in which they are similar to the cornified cells seen in the smear of the normally menstruating woman at the height of follicular activity. When this stage is reached, one may be certain that the hormone has fully replaced the estrogenic deficiency and that those symptoms due to the ovarian insufficiency of the menopause should be corrected. In this way we are able to separate the true ovarian insufficiency symptoms from those symptoms of this complex syndrome which arise from other causes

and for which measures other than hormonal should be taken.

Treatment of this character must, of course, build up the endometrium in similar fashion to the estrogenic hormone elaborated by the ovary. On the cessation of such therapy, the endometrium will, if the therapy has been prolonged, break down and result in bleeding. This bleeding is of a withdrawal type from a proliferative endometrium and is not to be regarded as true menstruation. It occurs while the cells are still cornified.

Is it necessary to use the vaginal smear in the treatment of all cases of the menopause? Cannot one rely entirely on subjective symptoms? I should say that in most cases it is possible, now that we have potent preparations and some idea of dosage, to treat the menopausal syndrome without the use of the vaginal smear. But I believe that the vaginal smear helps greatly in dealing with almost any case and that it is of special value in treating

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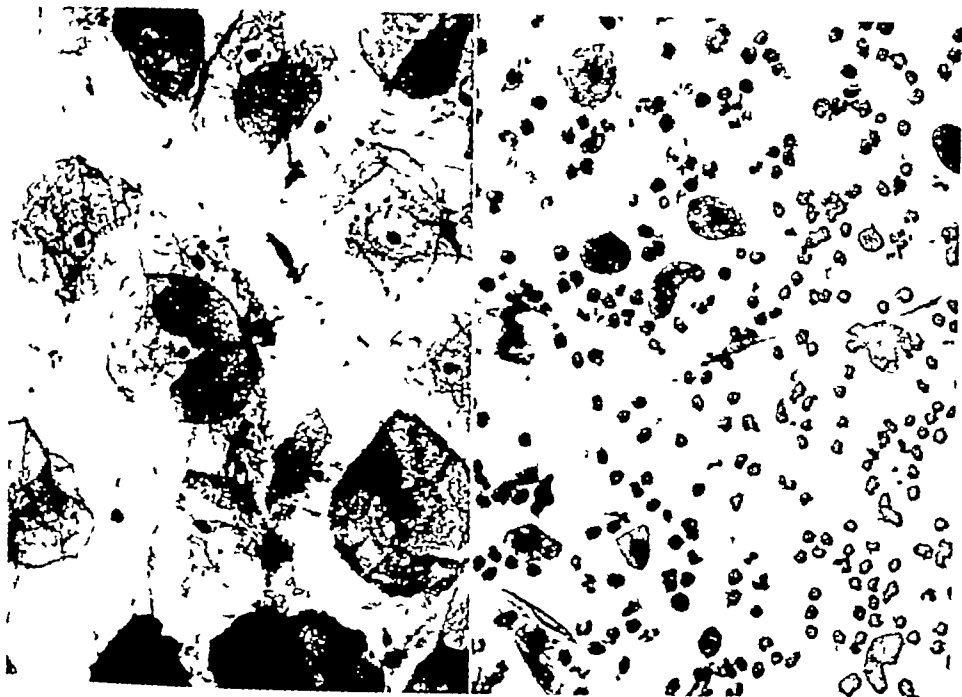


FIG 2

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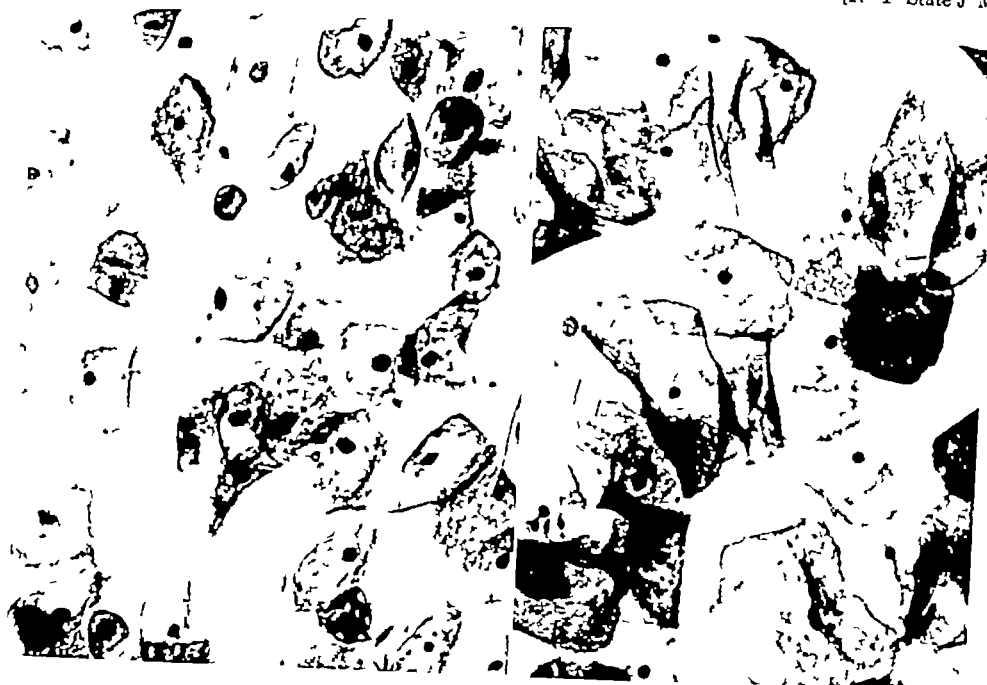


FIG 4.

FIG 5

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FIG 4 Vaginal smear from the same case during estrogenic therapy. A partial effect has been obtained, with the disappearance of leukocytes and of most of the deep cells and their replacement with a larger type of epithelial cell from the growing vaginal epithelium.

FIG 5 Vaginal smear from the same case after full replacement therapy with an estrogenic hormone. It is identical with the midmenstrual smear of the normal cycle (see Fig 1) and represents the end point of estrogenic therapy in the human.

the difficult cases in which the etiology of a variety of symptoms is uncertain.

The actual regimen adopted in our Clinic is somewhat as follows. Prior to any treatment, the patient is given, in addition to a general examination, a gynecologic examination, and any pathologic difficulties such as a cervicitis are corrected. A psychologic evaluation is made so that we may ascertain what personal and psychologic problems may be contributing to the difficulty. Estrogenic hormone is then given in amounts that will produce a full follicular reaction, and the symptomatic improvement is observed at each level of smear change. The first course of treatment is given over a period of a month to five weeks, then treatment is stopped to allow the endometrium to regress and to observe the rapidity with which symptoms return. Then, if and when symptoms again warrant, that dosage which, in the previous course, brought about optimal relief is selected and given for another period of a month or so. With a patient whose uterus has

been removed, interruptions in therapy are not required but are advisable from time to time to permit an evaluation of what readjustment to the new status has been achieved. Some workers suggest a progressive diminution in dosage, a procedure aimed to hasten the readjustment, but I do not feel that readjustments are accelerated in this way and I always give an amount sufficient to keep the patient entirely comfortable.

It is interesting to compare the symptomatic response with the degree of smear change. From such a comparison it becomes obvious that women respond differently symptomatically. In terms of estrus, one woman will require eight or ten times as much estrogen as another. In terms of symptomatic response, about one-quarter of the women will lose their symptoms with relatively slight changes in the smear, another one-quarter, with moderate changes, about one-quarter, with advanced changes, and the remainder, only when full replacement therapy is brought about. The reason for

this is not clear but may be quite closely related to the fundamental psychobiologic maladjustments that to many of us appear to underlie the menopausal syndrome

Women also differ widely in the ease with which they make an adjustment to the menopausal status with hormonal therapy. With some, only a relatively short period of treatment is required, with others, therapy is required for many years. The majority falls in-between these two groups.

Let us turn again to some of the more practical aspects of the administration of estrogens. If the patient can afford oral therapy, this is by all odds the method of choice because of its convenience and the ease of maintenance of a uniform level of hormone in the organism. Otherwise, the intramuscular route is the most economic and is more usually employed. The shorter the interval between injections, the more effective the treatment with any given dosage. That is, large doses given every week are much less efficient than the same total amount given at short intervals. The topical application of estrogen in pessaries is useful for the local discomfort of vaginitis. Implantation of crystals or pellets subcutaneously has been recommended but is now regarded with less enthusiasm because of local walling-off of the pellets or crystals and the inability to control bleeding in the presence of the uterus. In giving oral therapy, one must bear in mind that at least ten to twenty times the effective parenteral dose of estradiol and estrone must be given to produce an equivalent effect. One such preparation is labeled in active units, which represent 10 per cent of the actual number of rat units in the preparation, so as to provide for this loss of activity. All oral, estrogenic preparations should be similarly labeled.

Because of the variability from patient to patient, each patient must be regarded as an individual problem. About 2,000 rat units of estrone or estradiol benzoate, intramuscularly, three times a week, will probably be reasonably effective in dealing with the menopausal symptoms of the average patient and may be used as a trial dosage subject to modification in the light of the needs of the individual patient.

In addition to the estrogens, other agents have been employed in the treatment of the menopausal syndrome. Testosterone propionate has also been found to relieve symptoms, but because of the production of undesirable effects, such as hirsutism, deepening

of the voice, and enlargement of the clitoris, its use in the menopause is largely of academic interest except where it may be employed temporarily for the suppression of excessive bleeding of the climacteric.

Of much more interest is a group of synthetic estrogens which has recently been elaborated. I have included the formulas of two of these in Fig 1—stilbestrol and ethinyl estradiol. They are both potent estrogens by mouth, losing little of their activity as compared to the parenteral route. The estrous unit of stilbestrol in the human is between 2 and 4 mg per day, although, as with the natural estrogens, varying degrees of amelioration of symptoms are produced with smaller amounts. With ethinyl estradiol, full estrus is generally produced with from 0.30 to 0.45 mg per day. Unfortunately, the use of these synthetic estrogens is associated with the production of unpleasant symptoms, such as nausea, vomiting, dizziness, and lassitude, in a fairly considerable percentage of patients. While the actual percentage of these side effects varies widely in the hands of different investigators, their production is agreed upon, the mechanisms by which they arise are, however, still obscure. Evidence is accumulating to show that the body is unable to metabolize the synthetic estrogens as effectively as it does the natural ones. This failure of the detoxifying mechanism would permit the synthetic compounds to accumulate in greater than physiologic concentrations, with the production of toxic effects. In the face of the present uncertainty as to the nature and significance of the side effects encountered with stilbestrol, its recent release for general use places a real responsibility on the clinician to exercise proper caution in its administration and to watch carefully for the appearance of the toxic reactions that call for its discontinuance.

I should not close this discussion without a word about carcinoma in relation to estrogenic therapy. Carcinoma can be produced in experimental animals by the use of large amounts of estrogenic hormones under certain conditions and best in animals with a constitutional predisposition to carcinoma. These doses are several hundred times those employed in therapy of the human, and they must be given for periods of time which would correspond to decades in the human life cycle. Carcinoma has never been produced in animals in the dosage range employed in human therapy. From time to time, however, carcinoma has arisen in women during or after

estrogenic therapy Based, as it is, purely on the chronologic association of the therapy with the carcinoma, the inference that the estrogens have been causative in the cases reported appears to me to be unwarranted. The incidence of carcinoma in a large group of women treated with estrogens in our Clinic over long periods of time is no higher than that of the general population. However, as long as this question is still somewhat controversial, we should exercise every precaution to minimize the possibility of its production. We should look into the hereditary predisposition of the patient with regard to carcinoma and, as I have said earlier, subject the patient to repeated gynecologic examinations during therapy and watch the breasts carefully throughout. All inflammatory conditions in the pelvis should be corrected and excessive doses avoided.

I should also like to point out that we are dealing with a syndrome the etiology of which we do not know. We have effective therapeutic agents that are capable of alleviating the syndrome without, however, permitting us to determine the etiologic factors. There remains, once the symptoms are alleviated, the problem of the eventual readjustment to this physiologic state. To this readjustment other than hormonal factors must contribute heavily, and to this end the psychotherapeutic approach should be regarded as the most important adjunct.

DR WHEELER I should like to ask Dr Fishman, of the Department of Biochemistry, to say a few words. He has been interested in the biochemical aspects of some of the estrogens.

DR W. H. FISHMAN Supplementing Dr Shorr's discussion of the management of menopausal conditions, I shall consider the nature of the estrogens that are responsible for the well-known changes in the accessory sex organs of the female, particularly those of the vagina, uterus, and mammary glands.

All of the natural estrogens possess the steroid structure (see Fig. 1), a four-ringed system that is characteristic of some other important physiologic substances, such as the male sex hormones, the hormones of the adrenal cortex, and vitamin D. They are estrinol (1), estrone (2), estradiol (3), and estriol glucuronide (6). The position of the glucuronic acid residue has not yet been ascertained. All of these compounds have been isolated from human pregnancy urine, and estrone and estrinol have also been isolated from human placenta.

As Dr Shorr has pointed out, estrone and estradiol are usually injected in oily solution, and estrinol and estriol glucuronic acid are usually administered orally. A possible reason is the greater solubility of estrinol and estriol glucuronic acid in water, resulting in a more ready absorption from the intestine. Furthermore, they do not undergo so much destruction in the body as do estrone and estradiol.

The method for determining the biologic activity of these compounds now in general use is the vaginal smear technic of Allen and Doisy. As you have just heard, the cornification of the epithelial cells in the vagina is a characteristic of full estrus which occurs in the mouse every five days. When the ovaries are removed, this characteristic disappears along with the estrous cycle. After an interval following an injection of an estrogen into the ovariectomized animal, the vaginal smear may consist entirely of cornified cells. This biologic response has been standardized for quantitative work and is the assay method now most generally used by endocrinologists. The order of activity established on the basis of this procedure places estradiol first, followed by estrone, theelin or estrinol, and estriol glucuronic acid.

However, there is confusion still existing with regard to the relative potencies of these four compounds. Many people seem to minimize the importance of estrinol and its glucuronic acid conjugate and regard the two of them as inactive excretion products of the more powerful estrogens, such as estrone and estradiol.

Recently, however, there has been another biologic response to estrogens which has been standardized for assay purposes—this is, the uterine weight increase in the immature rat upon the injection of estrogen. The standardization curves of these substances show that the effects of estradiol and estrone on uterine weight are proportional to the dose, whereas the curve for estrinol flattens out as the dosage is increased—i.e., equal increments of dosage result in progressively smaller response. Furthermore, estrinol is more effective in causing the opening of the vagina of immature rats and, unlike the other two, the administration of estrinol does not result in an accumulation of uterine fluid.

One gamma of estradiol is found to be equivalent to 6 gamma of estrinol and, by the uterine weight assay, to 20 gamma of estrone. Here then, estrinol appears to possess a greater activity than estrone in contrast to the results

obtained by investigators using the vaginal smear technic. Is the qualitative action of estrol different from estrone and estradiol? We do not know the significance of this apparent difference.

What happens to the estrogens in the body? This is somewhat of a mystery at present. A few hours after administering large amounts of estrogens to rats, minute amounts can be found in the urine and feces and hardly any in the body as a whole. Ninety per cent of the estrogen injected into the blood stream of a dog disappears within a few minutes after injection, and only 13 per cent can be recovered in the urine. From this it appears, therefore, that the body possesses a low capacity to store these estrogens and they are readily inactivated. Is this inactivation process brought about by the conjugation with glucuronic acid and subsequent excretion of estrogen or may it not be direct destruction of estrogen? How important is the liver in this inactivation?

The metabolism of estrogen during pregnancy pursues an interesting course and one that is different from the estrogenic picture in the nonpregnant woman. Cohen and Marmar found that at about the eighth to the ninth month of pregnancy as much as 20 to 25 mg. of estrol is excreted per day and that 99 per cent of this is in a combined form. The amount of free estrogen in the urine is low, approximately 1 per cent of the total. The total amount of combined estrogen excreted in the urine mounts up month by month until after eight and one-half months have passed. At this time there is a sudden rise in the amount of free estrogen excreted and a corresponding fall of that which is in the combined form. It has been suggested that this sudden liberation of free estrogen sensitizes the uterus to the oxytocic principle of the posterior pituitary and results in the initiation of the first stages of labor. Whatever the explanation, the mechanisms that govern the conversion of combined estrogen to free estrogen may prove to be fundamentally important.

Of the synthetic estrogens that Dr Shorr mentioned, stilbestrol is the familiar one, and it has two to three times the potency of estrone. It is more effective orally than estrone or estradiol. Superficially, it would appear inconceivable that this compound could lead in the body to the formation of the four-ringed cyclopentanophenanthrene nucleus that we find in estrone, but there is a structural similarity between these which is

evident when the formula for stilbestrol is written as in No. 8 and compared with No. 2 in Fig. 1. It is interesting to note that compound No. 9, which is stilbestrol with the rings closed, is effective in producing estrus but that large amounts are required to do so. Another estrogen that has been recently synthesized is ethinyl estradiol (7). This compound has a greater oral and subcutaneous activity than any of the naturally occurring estrogens. It is conceivable, therefore, that this compound may lead to the formation of estrogens in the body. It must be admitted, however, that our knowledge of the metabolism and mode of action of the synthetic estrogens, as with the naturally occurring estrogens, is meager, indeed.

DR. WHEELER Dr Javert, I wonder if you would say a word from the point of view of the Department of Obstetrics and Gynecology on this subject?

DR. CARL T. JAVERT I should like briefly to state the point of view of the Department of Gynecology regarding the menopause as Dr. Stander teaches it. The menopause is fraught with complications from time to time. The patient usually consults us because of a deranged menstrual function, and that derangement may be either an amenorrhea or scanty menses or an increased flow. Before the patients come to us many of them have had a certain amount of endocrine therapy. This therapy may have been oral, intramuscular or in the form of vaginal suppositories. In the group that has amenorrhea, this form of therapy may have been beneficial, especially following a surgical castration with sudden cessation of the menses. However, not infrequently, when we perform the gynecologic examination that Dr. Shorr has stressed repeatedly, we find that the patient is pregnant. We have had several patients recently who had received large quantities of endocrine therapy and were pregnant. These patients may have had amenorrhea longer than the period of gestation, thereby confusing the picture.

Another group has received radiation which has produced an amenorrhea and, because of the amenorrhea, they in turn have received a certain amount of hormonal therapy. I can remember several cases with hematometra resulting probably from the restimulation of the lining of the uterus.

In the group with scanty menses or surgical menopause, the hormonal therapy has done the greatest good. Here the hot flush, the vasomotor symptomatology, has apparently

been benefited. I do not base this remark on any study of cases, but it is the impression I have and you can take it for what it is worth. However, in this group we have the obese patient and the hypertensive woman, and it is thought that in addition to the hormonal therapy additional benefit might be derived from attention to either or both of these associated conditions. Many of the women in the menopause are obese and a large percentage of them do have hypertension.

Of the patients with profuse periods or increased flow, not a few have had endocrine therapy for six months or a year without a pelvic examination, and it is in this group that the gynecologist finds cases that create despair, for, not infrequently, carcinoma of the body of the fundus or carcinoma of the cervix is uncovered. Six months or a year or even two years have elapsed when other therapy could have been instituted. Here again, Dr Shorr has commented in regard to the importance of the gynecologic examination. I am glad he said *repeated* gynecologic examinations during the course of endocrine therapy. It is common in the taking of the history of these patients to learn that the doctor did not make a pelvic examination. That is the case even in the City of New York and in many other large cities. Carcinoma of the cervix or fundus has been the biggest bugbear, as far as the gynecologic department is concerned, when hormonal therapy is used during the menopause.

Among the causes of increased flow at, or after, the menopause, strangely enough, we find hyperplasia of the endometrium. Why hyperplasia should be associated with the menopause when hormonal function is presumably at a lower threshold is not clearly understood. Hyperplasia has been reported up to the seventieth year of life. In fact, Novak takes the view that it may be a precursor of endometrial carcinoma. Whether that is true or not remains to be seen. I saw a case recently that had been in the menopause for a year, and curettage was done because of postmenopausal spotting, she had hyperplasia of the endometrium. Of course, in other cases the spotting and increased bleeding may also be due to a senile endometrium. Dr Shorr's presentation is admirable. From the standpoint of the gynecologic department it is especially so, since he points out that these patients require careful and repeated gynecologic examinations.

DR WHEELER: Thank you, Dr Javert.

I should like to ask Dr Shorr to say a word

about the choice of preparations. There is a huge variety of proprietary preparations of the endocrines on the market, and it would be desirable to know which are the good ones and which are the bad. Also, it would be useful to have a few more words, Dr Shorr, about the average doses required as a guide to the amounts needed in starting therapy.

DR SHORR: In answer to Dr Wheeler's question as to the choice of medication, there is one general rule as to what not to use in the way of estrogenic preparations. These are all the various dried ovarian residues, glycerol extracts of the ovary, and watery ovarian extracts. These hangovers from the dim dark past of endocrinology are, of course, utterly useless and should be abandoned. The preparation of the active estrogens that are available commercially fall into several groups. There are the estradiol preparations, which consist of either estradiol or of estradiol conjugated with benzoic or propionic acids. Free estradiol is intended for oral administration, the conjugated forms for intramuscular use. Estrone is available in either a crystalline form or a highly purified state for intramuscular or oral use. There are, likewise, an increasing number of preparations that owe their activity almost entirely to estrone but in which no effort has been made to separate it from the other estrogens, such as equilin and equilenin, which occur in stallion or pregnant mares' urine, which is its source. Estradiol and estrone are also available in pessaries and ointments for local use. Estrinol and estrinol glucuronide are intended for oral use exclusively. It is hoped that they will ultimately be made available in sufficient concentrations so that they will be useful in human therapy. As I said before, the chief considerations with respect to the choice of hormones are the actual estrogenic activity of the preparation, of which the rat unit is a better standard of reference for the human than the international unit, and, of course, the reliability of the manufacturer. The present powers of the Food and Drug Administration are such as to insure the maintenance of rigid standards for these products. As to the question that Dr Wheeler asked about the average dosage required, I have touched on that previously. It is an individual problem with each patient. With some patients 1,000 rat units a day produce a full estrous reaction, in others, 10,000 rat units a day are required. This indicates the wide difference in response which we encounter. As a starting dosage I should like to suggest

approximately 2,000 rat units, intramuscularly, three times a week, and then adjusting the dosage in terms of the response. If the expected therapeutic response with this or higher doses is not achieved, the vaginal smear can then be used to ascertain the reasons for it.

Summary

Dr SHORR You have listened to a discussion of what is perhaps one of the most satisfactory chapters of present-day endocrinology. Clinicians have become increasingly aware of the variety of symptoms which may arise from the menopausal maladjustment and which can become a source of profound distress not to the patient alone but also to those who make up her world. As the result of one of the most brilliant achievements of modern chemistry, powerful and effective estrogenic agents have become available for the amelioration of this distressing condition. Indeed, a start has already been made toward the synthesis of inexpensive, actively estrogenic substances, a fascinating chapter that Dr Fishman has briefly touched upon. Furthermore, methods have been developed for the controlled therapeutic use of these hormones which compare favorably in accuracy with those employed in dealing with other ductless glandular systems.

The practitioner has not been slow to take advantage of this therapeutic opportunity. But he has been confused by the number of different estrogenic preparations, each with its own unitage based on any one of a variety of methods of assay on animals. He may take comfort from the growing awareness that the human is the most appropriate test object for the assay of these different estrogenic agents and that the method for such assays is already available in the vaginal smear. He can, till then, accept the rat unit as the more reliable index of the comparative activity of different estrogenic preparations. When estrogenic preparations are employed by mouth, he should provide for the loss of 90 to 95 per cent of the activity of natural estrogens by this route.

The swift symptomatic relief from estrogenic hormones in the menopause should, however, not lead to the neglect of the many organic concomitants of this age period. Dr Javert has properly emphasized the danger of overlooking possible pelvic abnormalities at an age period with the highest incidence of carcinoma of the uterus. And, while there is no proof that the use of estrogens leads to neocarcinogenesis in humans as it does in animals, this does not relieve the physician of the responsibility for making repeated examinations of the breasts and for exercising special caution in patients with a familial history of carcinoma.

Another prevalent tendency is to hold the menopause responsible for all the disturbances encountered at this period. It is safer to regard the climacteric as only one episode in the more inclusive process of aging and to differentiate those phenomena that are specifically hormonal from those of other origins for which other types of treatment are appropriate. This is readily done by instituting full replacement therapy as indicated by vaginal smears and noting those phenomena that fail to respond to treatment.

The possession of an effective therapeutic agent for any condition often has the undesirable effect of diminishing our concern for the less immediately pressing, but often more fundamental, aspects that still remain obscure. I have pointed out how little is known of the mechanisms by which the menopausal syndrome arises and have had to confess that our concept of the process of readjustment consists of mere verbalization. What can be said with certainty is that the menopausal adjustment is not a purely hormonal matter but is dependent on more fundamental characteristics of the individual. The quality of the previous personality adjustment to the life situation appears to be a major determinant of the ease or difficulty with which the menopausal adjustment is made. Such considerations serve to point out the increasingly important role that psychotherapy can be expected to assume not only in the treatment but also the prevention of this condition.

OLD-FASHIONED

The marriage rate is rising nowadays! Though weapons are improved in many ways, Dan Cupid's doing well, we're glad to know, With just a simple arrow and a bow—Gerald Raftery in the *New York Sun*, September 29, 1941

WHAT'S THAT? SAY IT AGAIN

Did you ever stop to think how much better it is to be well and think how much better it is to be well than it is to be sick than it is to be sick and think how much better it is to be well than it is to be sick?
—Adapted

Mental Health

In the Salmon Lectures delivered at The New York Academy of Medicine last month, Dr Robert Dick Gillespie, psychiatric specialist of the Royal Air Force, told of the rare instances of mental breakdowns among the fliers and the phenomenal ability of the English civilian to withstand his present life Résumés of his addresses are given below—Editor

Mental Breakdowns in Army Avoided by Strict Tests

HOW the United States may avoid mental breakdowns among its armed forces by strict mental and physical examination before induction was described by Dr Gillespie in his first lecture

"There are remarkably few cases of psychoneuroses among the members of the Royal Air Force, and this is largely due to the extreme care which is used in selecting them. Only the mentally and emotionally stable get past the weeding out process which precedes acceptance into the RAF

"Moreover, everyone who flies for the RAF and most of the ground force has the 'professional attitude' toward his work, whether he is a pilot or an air gunner, a mechanic or a rigger. His patriotic devotion is reinforced by his pride in his particular technique and his devotion to his job"

As an illustration of the rarity of psychoneuroses among the RAF, Dr Gillespie pointed out that a hospital specially built for the care of psychoneurotic victims in the RAF had to be closed down after a few months and directed to other purposes because there were not enough patients to keep it going

"One reason why there are fewer neurotics in this war than in the last is the greater importance which is attached to the individual. Even among the infantry today, a man tends to be more and more a technician and less of a foot flogger"

Another class among which psychoneuroses are virtually unknown is the medical profession. Dr Gillespie attributed this phenomenon to the fact that doctors also have a "professional attitude" toward work, because they have a great responsibility to others and have had a realistic education.

"Surprisingly enough," Dr Gillespie continued, "the war has given birth to two institutions which are highly successful as a preventive of psychoneuroses"

Emphasizing the social aspect of psychoneuroses, which he defined as "a social disorder of the individual," Dr Gillespie said, "We have learned that shelter life with its common sharing of danger has helped people to withstand peril better than isolation in small groups, which often contributes to the development of psychoneuroses. The feeling of being with others during an air raid, even in an insecure shelter, brings courage.

"Moreover, shelter life and community centers fill a need for companionship and entertainment which were hitherto unmet. In large cities before the war we had the paradox of want amid plenty, social want in the midst of social possibilities

"Now we find persons returning from safe areas to the shelters in large cities declaring 'I'd rather be bombed than bored'"

Dr Gillespie named as one of the most signifi-

cant symptoms of psychoneuroses the apathy noted in the battle-worn soldier as well as in those whose homes have been destroyed and whose lives are completely disorganized.

"I believe that this apathy is a modern equivalent of the passive acceptance or lethargic state known in the Middle Ages as 'accidie' and that psychiatry has tended to overlook its existence because the symptoms are negative rather than positive. This apathy is usually the result of the continual thwarting of simple desires—in the case of the soldier, the repeated thwarting of the instinct of self-preservation, in the case of the civilian, the thwarting of the desire for activity

"Activity of some sort is a necessary condition of happiness and for many people a necessary preventive of psychoneurotic or antisocial behavior. It is important for psychiatrists to recognize the apathy or restlessness which may precede psychoneuroses or antisocial acts"

In wartime, he pointed out, this apathy often precedes symptoms of psychoneuroses among soldiers and fliers. Or else the continual thwarting of the desire for activity produces restlessness and irritability followed by rebellion

"The organism that is not active is halfway to death," Dr Gillespie reminded his listeners. "After the war we may expect either a dangerous restlessness or an equally dangerous apathy unless we are as energetic in organizing peace as we have been in organizing war

"For it is possible that if the psychiatrist had extended his observations to the preclinical changes, he might have been more useful in warning politicians of the threat to civilization contained in the thwarting of the activity instinct in such large sections of the world's population, leading in one country and one time to the symptom of apathy, at another to delinquency on an international scale."

Dr Gillespie considers the economic background of the individual a major influence in the development of psychoneuroses. In the poorest families, he pointed out, there are the smallest number of psychoneurotic cases. If the psychological conditions in the home are good, even extreme poverty leaves children unaffected

Much more important than money in preventing the development of future psychoneuroses in children, Dr Gillespie believes, is the cultural or family background. Emotional security is the central need of children in a family. Parental rejection of children is as potent a cause of neurosis as divagations of the libido

"Contrary to expectations, we have found in London that several families consisting of evacuated mothers with their children can live harmoniously in one house. The anticipated crises do not arise. This method works out much better for the children than when they are placed in the care of women other than their mothers,

no matter how complete is the care these women give them.

"Among children," he continued, "we have found that delinquency is often the opposite of psychoneuroses. In many cases, if a child had not been delinquent, it would have become neurotic."

It is only when psychiatrists reach the middle-class "competitive society in their observations that they find psychoneuroses becoming much more numerous, since competition seems to breed the desire for power, and this desire when unsatisfied breeds the beginnings of psychoneuroses."

Dr Gillespie blamed this destructive desire for power on the values inculcated by the more expensive types of education, which do not protect students from neuroses. The values from the cheapest forms of education he called inadequate.

"The poorest people lack 'pivotal' or fundamental values," he said, "and have instead superficial interests which are dictated largely by the cheaper newspapers."

Significant findings on the relation of unemployment to psychoneuroses have been made, Dr Gillespie revealed. From their observations, he said, psychiatrists have concluded that unemployment is less likely to produce psychoneuroses in men than in their wives, who are more inclined to develop anxiety neuroses from financial worry than men.

Women, however, do not seem to crave employment for its own sake, since studies show that women who are employed outside the home are less happy and contented than women who are living at home and are unemployed.

In his lecture, Dr Gillespie defined psychoneuroses as "abnormal mental states showing bodily or mental symptoms and resulting from a conflict over personal relationships."

Differentiating between the psychoneurotic and the psychotic states, Dr Gillespie pointed out that "unlike the psychotic victim who views the world with delusions and hallucinations the psychoneurotic patient has the same outlook as the normal man. It is believed that the psychoneurotic and the psychotic states are different degrees of intensity of reaction of the same mind to stress. A patient may at one time exhibit psychoneurotic symptoms and at another time psychotic reactions."

"Those who are most apt to develop psychoneuroses during war are those who in childhood exhibited morbid fears and 'nervousness' or those who have an obsessional, conscientious personality, particularly when overworked."

"While most mental disturbances are departures from a previous normality for the individual, others are the individual who may be subject to episodic disturbances, which for him are the only actual 'disease.'"

Civilian Population Suffers Small Psychological Damage

THE outstanding phenomenon of the present War has been the ability of the English civilian population to withstand constant air bombardment, loss of home, and disruption of their daily routine without suffering appreciable psychological damage. Not only have the storekeepers of London and elsewhere done "business as usual," but studies have indicated that there were actually fewer days lost by salespeople and other workers in bombed areas during the period of the "blitz" than in normal times. Dr Gillespie cited figures showing that in seventeen stores in the London area, while there were 687 days lost by employees in 1939, during a period of heavy air bombardment in 1940-1941, for a comparable period, there were only 673 days lost.

In the east Anglian area a similar condition was found with absenteeism being reduced from 4.1 days per employee to 3.1 per employee during the period of heaviest attack, which he stated was typical of the rest of England.

In this connection he said, "In general the decrease in absenteeism in the aggregate and per person employed is marked. Over this whole area it decreased by one day per person taking the area as a whole. The only month in which there was an absolute increase was in July before the bad air raids started but at that time there were a good many night alerts and the girls were very tired by staying up through the whole period of the alert."

"It can be said that one of the most striking things about the effects of the war on the civilian population has been the relative rarity of pathological mental disturbances among the civilians exposed to air raids. Guy's Hospital which is situated in Southwark—the Southwark of the

Canterbury Tales and of John Harvard—is in the middle of one of the most frequently bombed areas of London, and in the midst of a large population area of the poorer classes. Yet the psychiatric outpatient department which still functions there, records very few cases of neuroses attributable to war conditions. The patients who do come, with few exceptions, present mainly the same problems as in peacetime.

"As regards any significant sex difference in the development of psychological reactions to bombing, the difference seems to be in favor of women rather than men among the civilians. The male cases of emotional shock and psychoneuroses resulting from air raids in the Guy's sector comprises South East London and the whole Kent, which has been the area probably of the greatest and most continuous exposure."

Children, generally speaking, take their pattern of behavior from the adults and, if a brave demeanor was shown, children automatically followed suit. However, with children as with adults, more important than fear of death or destruction is the importance of satisfying their everyday needs. "It is not the physical danger or the prospect of it that matters most," Dr Gillespie said. "The outstanding lesson learned, not without surprise during recent experience, is that war or no war the pressing needs of parents with problem children cannot be ignored. Increasing demands for help coming from parents during recent weeks indicate that anxiety regarding their children's day-to-day difficulties takes precedence even in these times over the remoter fear of death and destruction." Behavior problems arising in children are usually caused by environmental or domestic situations, as in

peacetime, and can rarely be traced directly to the impact of the war itself, Dr Gillespie asserted, although there were several instances where a behavior problem was aggravated by a fear of air raids. In many instances the absence of one or both parents, in the service of munitions, played an important role.

Concluding this point, Dr Gillespie said, "Children are then remarkably unaffected by fear of air raids and this is undoubtedly connected with behavior of the adults around them. It is recorded, for example, that in a children's ward of a general hospital nurses set an example of cool courage by carrying little patients to shelter, and sitting up with them all night. None of the children whimpered, some fell asleep in the middle of the bombardment. Some of them indulge in games representing an air raid and may work off whatever anxiety they have in this way. "I have had difficulty in collecting instances of 'bomb fright' among children. No acute emotional reactions among children have been seen in Guy's Hospital," Dr Gillespie said.

Several children have suffered from "siren fright," i.e., from symptoms associated with the sound of sirens, but these particular cases occurred in children who had not actually been subjected to bombing itself, and who had previously shown some evidence of psychoneurotic tendencies.

When psychological trauma is suffered during a bomb raid, Dr Gillespie stated, it might assume any one of a variety of forms, most immediate being "acute panic," some confusion, and loss of memory for what has actually happened, particularly if the individual has left his post of duty. Acute panic occurs, however, only in the predisposed, especially the habitually timid and anxious.

The second type of immediate reaction to bombing is the immobility or passive reaction. For example, a young married woman who had always been timid and shy, and inclined to tremble in talking to strangers, heard the warning siren and made for a shelter, some bombs dropped before she reached it, and she hesitated before entering, and then apparently became unconscious. On recovering in the hospital she said she had lost the use of her legs.

A third type of immediate reaction consists in direct bodily manifestations of fear, tremor, dilated pupils, staring eyes, and such transient reactions as weakness of the legs.

In addition to psychological reactions observed at the immediate scene of the bombing, Dr Gillespie pointed out that more frequently there were remote reactions, which develop after a period of time. He cited the case of a young woman who had been in a building which had been smashed in a bomb raid and showed hysterical aphonia (inability to talk) for a week afterward. The reason for this reaction, he said, was because her mouth became filled with brick dust immediately after the explosion and she had found difficulty in speaking.

"All such conditions occur as a rule only in the predisposed," Dr Gillespie stated, "but exceptions to this rule are those who have been repeatedly exposed to frightening experiences and those who have undergone even more than usually terrifying ordeals."

More spectacular, and unexpected, than any of these reactions, Dr Gillespie emphasized, was

the frequency with which individuals whose entire life had previously been characterized by timidity, shyness, or other psychoneurotic manifestations were transformed into outstandingly courageous and self-sacrificing persons.

Typical of this group was the case cited of a 24-year-old dental mechanic who had been receiving medical attention for four years suffering from a depression in a timid personality. He dated his condition of "nerves," as he called it, to an air raid when aged four in the last war. He was very small in stature and had always been self-conscious about his size. He had found the greatest difficulty in making an impression anywhere on anyone, unsuccessful attempts to learn dancing, for example, and other social failures aggravated his depression of spirits. He dreaded being handed a rifle, and before the attack on London began he dreaded to face work with casualties. He was considered unfit for the fighting services and was finally assigned to A.R.P. work. Anyone who saw him would have marked him as a miserable little shrump and no future hero—but he became very successful as an A.R.P. warden. According to Dr Gillespie, "he has had at least three remarkable escapes and received a bomb splinter in one hand. He remarked that in critical moments 'girls turn to me'." He liked to see the planes coming. "It is my quickness," he said, "against them."

"In 1940 he was bombed out of his home, his mother and father were cut up and shocked. Following this he was bombed again twice, and found that his new abode had also been destroyed. After a week's leave he went back to duty and when last heard of was in full activity, and rather aggressively critical about conditions in shelters. It is clear that he has found an opportunity which completely relieves his sense of failure and inferiority."

Some of these so-called neurotic individuals show no signs of neurosis and are efficient and courageous during a bombing but develop acute signs of anxiety again only when released from duty and posted to a quiet place.

Dr Gillespie stressed the fact that keeping people busy and occupied was one of the best ways of preventing mental breakdown after facing tragedy of other terrifying experiences, thus avoiding a period of rumination which may precede a remote psychological reaction. In one survey of 119 persons in a bombed area, it was not until two or three weeks after the actual bombing that 30 per cent complained of symptoms of one sort or another, usually of bodily distress, but without evidence of physical disease. "This observation," Dr Gillespie said, "emphasizes the importance of occupation in the prevention of psychoneurotic aftereffects. It was only after the individuals concerned had finished rearranging themselves and their affairs and had time to sit down and consider the situation that the symptoms appeared. It is disorganization rather than fright that is the causal factor here."

Dr Gillespie discussed at some length the problems associated with the transplanting of thousands of evacuee children and said that while some personality difficulties were noticed "children adapt themselves far more readily to new persons and new environments than had generally been predicted."

In commenting on an increase in juvenile delinquency, he said, "It has to be remembered that although the removal of many of the outlets that ordinarily exist in a city plays a considerable part in sending up the juvenile delinquency, on the other hand, those who moved to the country find new interests and probably better ones than they ever did in town. One group of boys evacuated from London to the country have actually lost their interest in cricket to a large extent and become enthusiastic about hay making and work on the farm as well as other country pursuits. It is an interesting object lesson for the future use of the energy of the young and also suggests possible lines of reorientation of their values."

A general survey of evacuee children, Dr Gillespie said, indicated that there had been no great increase in psychological disturbances and that the majority of those who exhibited them had presented problems also before the war. Analysis of a group of children who had evidenced behavior problems after evacuation indicated that in 10 per cent of the cases the new foster home was unsuitable, in 19 per cent the parents of the child, either because of ignorance or selfishness, were the disturbing factor, and that in the remainder the difficulty was caused by some personality or intellectual difficulty such as feeble-mindedness, physical defect, or bad behavior patterns which pre-existed.

Disorganization of the child's regular routine is the most devastating factor of all, Dr Gillespie said, and seems to have occurred as frequently

in children who had not been evacuated but whose school hours had been curtailed and whose recreational clubs are no longer open as a result of air raids.

Most successful placements of evacuee children are working-class homes where the evacuee "lumps in" with the rest, "even with the problem children." "These women show a patience which is often lacking elsewhere in big houses and with richer people, and the only successful way is to have a group of five or six children with a helper. Otherwise the child is apt to fall between the owners and the maids, neither of whom feel themselves fully responsible for its entertainment. This leads to wandering about in the streets and getting into mischief."

He indicated, in conclusion, that British authorities were readapting themselves to facts as they became known and were aware that the re-establishment of homes after bombings was as important as hospital treatment for the maintenance of good mental health, that the problems arising out of the evacuation of children were being studied and more attention was now being given to be certain that the home and the child were mutually adaptable, that psychoneurotic reactions following exposure to danger were much less frequent than was to be expected and apparently no greater hazard than the disorganization of life for the individual as a result of conditions in a bombed area or of evacuation to strange districts, where habit patterns suddenly were uprooted.

MENTAL HEALTH AND THE GENERAL PRACTITIONER

Urging the adoption of a comprehensive program for civilian mental health, Mr. Watson B. Miller, Assistant Federal Security Administrator, recently addressed a group of psychiatrists, according to the *Annals of the District of Columbia*. He stated that "psychiatric knowledge already far outstrips its application. Much more can be learned, and will be learned as greater attention is paid to research in nervous and mental diseases. Psychiatry in the United States is far more advanced than in any other country. Yet there are in the United States today only 3,000 trained psychiatrists."

"What is more disturbing, medical education has not equipped general practitioners to recognize mental disease in its early stages, nor to apply psychiatry in the treatment of a very large number of their patients whose bodily ailments are clearly psychic in origin. Yet, it is impossible to see how we can make further progress in mental hygiene without the informed interest of the general practitioner. It is he who first sees the great majority of incipient cases, it is he to whom the neurotics turn with their subjective symptoms, very real to them, for which he can find no demonstrable physical cause."

"Not only the major share of case-finding but even a part of treatment can be done by the well-trained general practitioner. The psychiatrist should be regarded as the consultant and the specialist in the treatment of mental disease."

YESTERDAY, TODAY, AND TOMORROW

There are two days in every week about which we should not worry—two days which should be kept free from fear and apprehension.

One of these days is yesterday with its mistakes and cares, its aches and pains, its faults and blunders. Yesterday has passed forever beyond our control.

All the money in the world cannot bring back yesterday. We cannot undo a single act we performed, we cannot erase a single word we said. Yesterday is gone.

The other day we should not worry about is tomorrow with its possible adversities, its burdens, its large promise and poor performance. Tomorrow also is beyond our immediate control.

Tomorrow's sun will rise either in splendor or behind a mask of clouds—but it will rise. Until it does, we have no stake in tomorrow, for it is as yet unborn.

That leaves only one day—today. Any man can fight the battles of just one day, any woman can carry the burdens of just one day. It is only when you and I add the burdens of those two awful eternities—yesterday and tomorrow—that we break down.

It is not the experience of today that drives men mad—it is remorse or bitterness for something which happened yesterday and the dread of what tomorrow may bring. Let us, therefore, journey but one day at a time.—L. H. P. in the *Pennsylvania Med. J.*

Medical News

Health Record for the First Nine Months of 1941

SEPTEMBER, 1941, recorded a death rate of 6.5 per 1,000, which is the lowest rate for any month in any year in the history of the Metropolitan Life Insurance Company's industrial policyholders. The first part of the year, however, owing to the influenza epidemic, registered higher rates than the corresponding months of 1940.

According to the *Bulletin* it looks as if 1941 will be among the best health years. The prognostication is based on the experience of the millions of wage earners and their dependents who are industrial policyholders of the company and

from fragmentary data for the general population. The 1941 death rate of the policyholders for the January-September period is 7.6 per 1,000, which is 1.3 per cent below the 7.7 per 1,000 of a year ago. For the general population in the 88 major cities of the United States, there have been 1,097 fewer deaths reported in the first forty weeks of this year than in the corresponding period of 1940—a decline of about 1 per cent in rate. For New York City the 1941 year-to-date rate is 9.9 per 1,000 or 2.9 per cent below the figure recorded in the same period last year which was 10.2 per cent.

County News

Albany County

At the first of a series of social justice forums sponsored by the Beth Emeth Temple in Albany, Dr. John J. Bourke, research director of the State Health Preparedness Council, spoke on the many problems of medical care and the defense program. Dr. Joseph Lawrence, executive secretary of the State Society, assisted Dr. Bourke in answering the questions of the audience.

Allegany County

At the annual meeting of the county society, held at Belmont on October 30, Dr. Herman Pearce, Jr., an instructor at Strong Memorial Hospital, Rochester, gave a talk on vascular diseases, their symptoms and treatment, illustrated with lantern slides.

The officers were re-elected as follows: Dr. William Reedy, Wellsville, president; Dr. Loren P. Bly, Cuba, vice-president; Dr. E. F. Comstock, Wellsville, secretary; and Dr. R. W. Blaisdell, Wellsville, treasurer.

Broome County

The society held its business meeting on November 11 in the auditorium of the City Hospital in Binghamton. The scientific program was postponed until two days later at the meeting of the Finger Lakes Regional Fracture Committee. Dr. Charles L. Scudder, of Boston, who has been so instrumental in the revolutionary treatment of fractures during the past twenty years, spoke on "The Operative Treatment of Fractures."

Cheung County

The regular monthly meeting of the county society was held on October 29 at the Arnot-Ogden Hospital in Elmira. The meeting was called to order by the president, Dr. George Murphy.

In the absence of Dr. A. H. Hillman, chairman, Dr. J. S. Lewis reported for the nominating committee. The committee made the following nominations: president, Dr. John Burke, Sr., and Dr. Leon Hamilton, vice-president; Dr. Swen Larson and Dr. F. S. Hassett, secretary; Dr. Harold Walker and Dr. Ross Hobler, treas-

urer; Dr. M. F. Butler and Dr. John P. Murphy, censors; Dr. F. E. Woodhouse, Dr. A. J. Westlake to succeed himself, and Dr. C. H. Erway to continue, delegate to the State Society; Dr. C. F. Leet, alternate to the State Society; Dr. J. F. Lynch requested to remain as alternate, and trustee, Dr. C. F. Abbott to succeed himself.

On Wednesday, December 10, there will be a joint meeting of the Medical and Dental societies of Chemung County, at which time Frederick S. Dunn, M.D., D.D.S., will speak.—F. S. Hassett, M.D., Secretary.

Cortland County

The members of the society are attending a series of lectures at the Cortland Hospital on Friday evenings. The next lecture will be on December 5 and the final one of the series on December 19.

Dutchess County

At the regular meeting of the society held in Poughkeepsie on November 12, Dr. Charles A. R. Connor, of New York City, talked on "Rheumatic Fever and Heart Disease." The speaker for the program was provided by the Council Committee on Public Health and Education and the Cardiac Bureau of the New York State Department of Health.

Erie County

For the best interests of his patient, the general practitioner or family physician should have equal recognition with the specialist in hospital privileges and in "medical government," Dr. Arch Walls, of Detroit, medical organization leader, told the county society on October 28.

A resolution instructing the society's committee to consider the setup of a general practitioners' unit and to report its findings at the November 25 meeting was passed.

With hospitalization insurance becoming so popular, the American Medical Association hopes "to give stimulus throughout the United States to creating a general practitioners' section in each hospital and in each medical association," Dr. Walls declared.

Dr Walls is past-president of the Wayne County Medical Society and now is president of the West Side Medical Society and the Association of Family Physicians of Wayne County and chairman of the General Practitioners' Section of Mount Carmel Mercy Hospital of Detroit.

"Right now," he said, "two-thirds of those in the profession are general practitioners. There are about 100,000 of them, as compared with 22,000 specialists and 22,000 seeking to become specialists."

"The family physician usually has to do his work in a home, even when he needs hospital facilities, or turn his work over to a specialist with hospital privileges. We know that we must have the specialist, but we also want equality."

"General practitioner sections are on trial for the following year with the A.M.A. If we can show a scientific program and satisfactory attendance, we will have equal voting power in the A.M.A. with the specialist."

The society passed a resolution providing for employment of an executive secretary. Dr Nelson W. Strohm presided.

At the November meeting, held on the twenty-fifth, Dr George W. Cottis, president-elect of the State Society, addressed the County Society. Dr Leonard Greenburg, director of the Division of Industrial Hygiene of the New York State Department of Health, gave a talk on industrial hygiene.

Franklin County

Twenty lectures by outstanding medical men are listed on the fall and winter programs of the Saranac Lake Medical Society and Osler Club. All sessions are held in the John Black Room of the Saranac Laboratory.

The program is as follows

October 29 Dr David Rutstein, director of the Cardiac Bureau, New York State—"The Present Status of the Diagnosis and Treatment of Rheumatic Heart Disease"

November 5 Dr L. U. Gardner and Dr A. J. Vorwald—"Clinical Pathological Conference"

November 12, OSLER CLUB Dr Charles C. Trembley, Saranac Lake—"Recollections of a Coroner"

Friday, November 21 Dr Harold Wolff, associate professor of medicine, Cornell University, New York City—"Headache Mechanisms"

November 26 Dr J. F. Volker, assistant professor and Carnegie Senior Fellow in Dentistry, University of Rochester, Rochester, New York—"Radioactive Isotopes in Medical and Dental Research"

December 3, OSLER CLUB Dr Leonard Schiff, Plattsburg, New York—"Horace Nelson and His Lancet," a Saga of North Country Medicine

December 10 Dr Henry Marble, assistant surgeon, Harvard Medical School—"The Care of Infections and Injuries of the Hand"

January 7 Dr F. A. D. Alexander, director of anesthesia, Albany Hospital, assistant professor of pharmacology and physiology, Albany Medical College—"Title to be announced"

January 14 Ray Brook Sanatorium Evening

January 21, OSLER CLUB Canon Thomas,

Late Canon in Residence, Bermuda Cathedral—"Relationship Between Religion and Medicine"

January 28 Dr Norman Plummer, assistant professor of clinical medicine, Cornell University, New York City—"Newer Chemotherapeutic Methods"

February 4 Dr William P. Thompson, assistant professor of medicine, College of Physicians and Surgeons, New York City—"Hematological Aspects of Tuberculosis of the Spleen and Lymph Nodes"

February 11 Gabriels Sanatorium Evening—Dr John Hayes and Staff

Thursday, February 19 Dr C-E A. Winslow, professor of public health, Yale University School of Medicine—"The History of the Germ Theory"

February 25 Veteran's Administration Hospital Evening—Sunmount, New York. Dr Siegfried Thannhauser, professor of medicine, Tufts Medical School, Boston—"Xanthomatous Diseases"

March 4 Stonywood Sanatorium Evening—Dr Wayne L. Henning and Staff

March 11 Dr Ross Golden, professor of radiology, College of Physicians and Surgeons, New York City—"The Roentgenology of Diseases of the Terminal Ileum and Cecum"

March 18 Dr Sara M. Jordan, Lahey Clinic, Boston—"Practical Problems of Peptic Ulcer"

March 25, OSLER CLUB Dr George Wright, Trudeau Sanatorium—"History of Pulmonary Physiology"

April 1 Dr Melvin H. Knisely, assistant professor of anatomy, University of Chicago—"Microscopic Observations of the Circulation in Small Blood Vessels Under Normal Conditions and During Malaria and Other Diseases"

Genesee County

James A. Le Seur, former city judge, district attorney, and city attorney, was honored at a joint meeting of the Genesee County Bar Association and Genesee County Medical Society held at the Hotel Richmond in Batavia on November 5. Twenty-seven attorneys and 18 physicians paid tribute to Judge Le Seur who marked his eighty-fourth birthday on November 18.

Greater New York

To the Private Practitioners of Medicine and Superintendents of Civil Hospitals in the City of New York New Procedure Regarding the Completion of Death Certificates

Commencing November 1, 1941, private practitioners of medicine and civil hospital authorities will be relieved of the responsibility of completing the left side of death certificates required to be filed with the Department of Health, except in those instances where the body is represented by a funeral director and is delivered to the City Cemetery.

This procedure was adopted by the Board of Health after approval by (1) the Public Health Relations Committee of the Academy of Medicine, (2) the Coordinating Council of the five county medical societies, (3) the Greater New York Hospital Association, and (4) the Metropolitan Funeral Directors Association.

Funeral directors will hereafter be held responsible (1) for obtaining and entering the personal

particulars required to complete items 2 to 14 of the death certificate and (2) for obtaining the signature and address of the Informant and relationship to the deceased in item 15. This change will bring procedures in New York City more nearly in conformity with practices in this regard elsewhere in the United States and will relieve physicians and hospital authorities, who frequently have little or no interest in this information, of this responsibility with which they were previously charged.

This means that with the exception of City Cemetery cases—mentioned above—physicians and hospital authorities will be required only (1) to enter the name and social security account number of the deceased in item 1, (2) to complete the Medical Certificate of Death—items 16 to 21, inclusive (and in Manhattan the Physician's Confidential Medical Report)—and (3) to fill in the Physician's Supplementary Certificate of Death by Natural Causes—on the back of the certificate, or on a separate form, except in connection with Form 17-H-1941, used in Manhattan only (see upper left-hand corner of certificate).

The Board of Health is confident that this change of procedure will receive unanimous approval and trusts that private practitioners and hospital authorities will renew their efforts to prepare *promptly, completely, and accurately*, the medical certificate of death and the related documents for which they are still responsible.

THOMAS J. DUFFIELD
Registrar of Records

Department of Health, City of New York
October 27, 1941

Greene County

The county society has revised the fee schedule to conform to the minimum fee schedules of the New York State Workmen's Compensation and the counties adjacent to Greene. Office visits—\$2 00, house visits—8 A.M. to 9 P.M.—\$3 00, advanced fee for night calls—9 P.M. to 8 A.M., minimum maternity including three after visits \$40 00 (does not include prenatal calls), out-of-town calls per mile or fraction thereof in addition to other charges—per mile 50 cents one way.

Jefferson County

The annual meeting of the county society was held on November 13 at the Black River Valley Club. Dr. James L. Crossley spoke on "Endocrinology in Obstetrics and Gynecology."

Kings County

At the meeting of the society and the Academy of Medicine of Brooklyn on November 18, Dr. Edwin C. Hamblen, associate professor of obstetrics and gynecology, Duke University, gave a talk on "Some Observations on the Diagnosis and Treatment of Functional Disorders of the Pituitary and Ovaries." Dr. S. Bayne-Jones, dean of the Medical School, Yale University, spoke on "Cancer Research."

Monroe

At the rededication of the Rochester Academy of Medicine Museum held on November 16, Dr. Walter B. Cannon of the Harvard Medical School gave an address. Dr. George H. Whipple

made the introductory remarks. The meeting was under the sponsorship of the Rochester Academy of Medicine, the Medical Society of the County of Monroe, and the University of Rochester School of Medicine.

Nassau County

The *Nassau Daily Review Star* carried a special health section of thirty pages in its issue of October 29. The doctors and health officers of Nassau County and the county society are to be congratulated on the well-integrated activities of the county and the splendid achievements of the various organizations.

Dr. Charles W. Martin, president of the county society, presided on October 28 at the short business meeting which followed a dinner of the group at the Garden City Hotel, Garden City.

The meeting was held in Cathedral House. Dr. Arthur C. Martin, vice-president of the cancer committee and chairman of the tumor clinic, was toastmaster. "Technical Aspects of Cancer" was the topic taken up at the scientific session, and the speakers were Dr. Fred W. Stewart of Memorial Hospital, Manhattan, Dr. Robert P. Ball of the Presbyterian Hospital, Manhattan, and Dr. Ashley W. Oughterson of the surgery department of the Yale University School of Medicine.

New York County

New York City's school authorities are co-operating with the Medical Society of the County of New York in sponsoring a series of broadcasts for school children on Thursdays at 11 45 A.M. entitled "For Your Health." The series will be broadcast over WNYC.

"These broadcasts will lay emphasis on many of the topics contained in the courses of study and syllabuses in hygiene for the elementary, junior high, and senior high schools," Superintendent of Schools Harold G. Campbell declared in a circular to school supervisors urging them to have the pupils listen in.

"Schools equipped for radio reception should, if the school program permits, make use of these broadcasting programs for classroom instruction in healthful ways of living," Dr. Campbell said. "Parents also should have their attention called to these programs," Dr. Campbell continued, adding:

"Parents and pupils through their teachers are invited to submit questions on health problems to the Medical Society of the County of New York, care of Station WNYC. These questions will be answered by the speakers who will be heard on this program each week."

Dr. Joseph Francis McCarthy, director of the Department of Urology of the New York Polyclinic Medical School and Hospital, received an unusual honor recently when a new wing in the Barros Luco Hospital in Santiago, Chile, was named for him. The entire cost of construction of the wing and equipment was covered by an endowment by Abraham Atala, a Syrian merchant. Dr. Edward Abud, a Syro-Chilean pupil of Dr. McCarthy, presided and the ceremony was attended by President Pedro Aguirre Cerda and Claude E. Bowers, American Ambassador, who said that he felt that the entire American medical profession has been honored.

The comitia minora of the New York County Medical Society has adopted and approved a plan to provide the 4,400 tenants of the East River Housing Project, 446 East 104th Street, New York City, with the services of physicians at low cost. It is expected that the society will approve the plan after details are worked out.

The plan calls for a two-year experiment with voluntary cooperation of residents in East River houses. Residents would pay 25 cents monthly for a single person, 50 cents for a married couple, 75 cents for a family with one child, and \$1 00 a month for a family of four or more. Subscribers would receive the unlimited services of a general practitioner, one resident physician being assigned for every 250 families, or choice of any resident physician and the physician would be free to refuse a patient he deems undesirable.

It was recommended that the physicians chosen be young men who have recently completed their internship in a good general hospital. Then, if the experiment is terminated after the two years, they would have lost nothing but would have gained experience. They would be selected by a supervising medical board of outstanding physicians who are senior members of the staff of the nearest hospital.

Ontario County

During November the Geneva Academy of Medicine held its annual dinner meeting with Dr Charles B Huggins of the surgery department of the University of Chicago as the speaker. Dr Frederick J Parmenter, of Buffalo, Dr Leo Gibson of Syracuse, Dr Arthur H. Paine, of Rochester, Dr Carlyle Haines, of Sayre, Pennsylvania, Dr William Eikner, of Clifton Springs, and Dr Albert M. Crance, of Geneva, opened the discussions. All of the discussers recently heard Dr Huggins present a summary of his work at a sectional urologic meeting in Hamilton, Ontario, Canada.

Orange County

The county society has just completed, through its medical preparedness committee plans that will embrace medical problems of civilian defense for the entire county. Dr Theodores W Neumann, of Central Valley, is chairman, and members include Drs. E. G. Cuddeback, M. A. Stivers, S. B. Schleiermacher, T. D. McMena-min, and H. F. Morrison.

Oswego County

Appealing for more intensive efforts in the interest of rheumatic fever victims, whom he described as "cripples who don't lump," Dr Alexander T. Martin, clinical professor of pediatrics at Bellevue Hospital, New York University, disclosed his findings of a twenty-year study at the opening fall meeting of the county society at the Elks Club in Oswego on October 23.

A round-table discussion followed Dr Martin's talk. Approximately 30 members of the county society were present with Dr Edward Fox, of Fulton, president, presiding.

At the November 7 meeting Dr Paul Reznikoff, associate professor of clinical medicine at

Cornell Medical College, talked on the diagnosis and treatment of anemia.

Putnam County

At the regular monthly meeting at the Gypsy Trail Club in Carmel, October 1, Dr John D. Lyttle, associate attending physician at Babies Hospital, New York City, was guest speaker. His subject was "Indications for Urological Investigation in Children."

The speaker for the meeting on November 5 was Dr Walter Timme, of New York City. His subject was "Status Hypoplasticus," especially in reference to its importance in examining selectees for the Army.

Rockland County

Members of the county society and the board of supervisors at a special meeting on October 22, held in Jerry's Tavern in Nyack, heard Dr Renfrew Bradner, of Warwick, unfold the Orange County plan of providing full medical and surgical care of indigent patients which has been in operation in Orange since 1935 and which he stated was operating most successfully. Dr Bradner gave in detail the history of the system which ended in an agreement between the Orange County Board of Supervisors and the county society under which physicians who attended indigent patients received remuneration for their services on a reduced scale of fees subject to approved regulations.

Dr Harold Heller, of Spring Valley, explained that a committee of the medical society of Rockland County had made a study of the Orange County plan and was impressed by the manner in which it operated. He felt that the physicians of this county should be paid for their services, pointing out that the indigent patients and the public as a whole were inclined to the belief that in the treatment of indigents the physician's fee was paid along with other costs attending treatment of the patient.

A series of lectures being given on general medicine has three remaining meetings. They are held in the Summit Park Sanatorium in Poughkeepsie at 3 30 p.m. December 5, "Asthma," by Dr William B. Sherman, December 12, "Syphilis," by Dr Leslie P. Barker, and December 19, "The Diagnosis and Treatment of Anemia," by Dr Paul Reznikoff.

Saratoga County

All offices were re-elected at the annual meeting of the county society held on November 6 at the sanatorium of the Metropolitan Life Insurance Company, Mount McGregor. They are president, Dr Gilberto S. Pesquera, Mount McGregor, vice-president, Dr M. D. Duby, Schuylerville, secretary, Dr Malcolm J. Mago-vern, Saratoga Springs, treasurer, Dr W. J. Maby, Mechanicville.

The society voted a \$25 donation to the iron lung fund and received annual reports. Members dined as guests of Dr William H. Ordway, sanatorium superintendent, after which they joined the Trudeau Society for the technical program.

The speaker was Dr Herman Mosenthal, professor of clinical medicine at Columbia University, whose topic was "Hypertension."

Schenectady County

Dr Charles L Brown, professor of medicine at Temple University Medical School in Philadelphia, addressed the members of the county society on November 4 at the meeting held in the auditorium of the nurses' home at Ellis Hospital, Schenectady

The *Bulletin*, which has made its appearance this fall, is a distinct credit to the society and congratulations are due its publication committee Dr Ralph E Isabella and Dr Gomer Richards

Schoharie County

Dr R. G S Dougall, of Cobleskill, was elected president of the county society at the annual meeting on October 22 in Cobleskill. Other officers named were Dr L. R. Becker, Cobleskill, vice-president, Dr Duncan Best, Middleburgh, secretary, Dr Donald Lyon, Middleburgh, treasurer, Dr Joseph Duell, Jefferson, censurer, and Dr David W Beard, Cobleskill delegate to the State Society

Steuben County

Dr W F MacPherland, of Hornell, presided at a meeting of members of the county society, following a luncheon at the Hotel Wagner, Bath, on October 30. In this postgraduate program of the society, Dr W W Lashure, assistant professor of surgery of New York Post-Graduate Medical School, spoke on "Bursitis Strains and Sprains"

Warren County

Dr E J Fitzgerald, of Glens Falls, was re-elected president of the county society at the annual meeting on October 23 held in The Queensbury at Glens Falls. Dinner and a talk by Dr Robert Zollinger preceded the election. Dr Zollinger is assistant professor of surgery at Harvard Medical School. The session was attended by more than 70 physicians, including a number from Washington and Saratoga counties.

Speaking on "When Is Surgery Advisable in Peptic Ulcer?" Dr Zollinger said that the modern trend in treating the ailment and its complications is through medicine and that sur-

gery should be avoided unless a thorough trial of medical treatment fails. After the address a discussion was carried on by Drs. LeRoy J Butler, Nelson R. Fraser, Irving R. Juster, E. B. Probasco, Lester C. Husted, and B. J. Singleton, of Glens Falls, and E. J. Callahan, of Saratoga Springs

Dr H. H. Dier, of Lake George, was elected vice-president of the society and Dr Roger S. Mitchell was re-elected secretary and treasurer. Dr Joseph Merin, of Bolton Landing, and Drs. D. A. Zurlo and C. A. Buck, of Glens Falls, were named a board of censors, and Dr Morris Maalon was re-elected delegate to the State Society

Westchester County

The 144th annual meeting of the county society was held on November 18 at the New York Hospital, Westchester Division, in White Plains. Dr W. W. Bauer, director of Bureau of Health Education, American Medical Association, addressed the meeting on "Health Education and the Doctor"

The Special Committee on Nominations, under the chairmanship of Dr Henry J. Vier, of White Plains, presented the following nominations for the coming year: president, Dr George C. Adie, of New Rochelle (by automatic succession from the office of president-elect), president-elect, Dr E. Christopher Wood, of White Plains, vice-president, Dr Waring Willis, of Bronxville, secretary, Dr Virginio Minervini, of Yonkers, treasurer, Dr W. Alex Newlands, of Tarrytown, censors (two years), Dr Reginald A. Higgins, of Port Chester, Dr E. H. Huntington, of Ossining, and Dr E. Leshe Burwell, of New Rochelle, delegates (two years), Dr L. D. Redway, of Ossining, and Dr E. H. Reston, of Mount Vernon, and alternate delegates (two years), Dr R. B. Archibald, of Bedford Hills, and Dr Ralph T. B. Todd, of Tarrytown

Yates County

A regular meeting of the Yates County Medical Society was held in Penn Yan on October 21. Dr John Lichty, assistant professor of pediatrics at the University of Rochester School of Medicine, gave the scientific paper of the evening. His subject was "Heart Murmurs in Childhood"

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
William S Branner	66	Medico-Chirurg Phila	October 28	New Paltz
Samuel I Brody	28	Bern	July 18	Brooklyn
W Price Davis	62	Jefferson	August 15	Trumansburg
Joseph F de Castro	81	Bell	November 2	Brooklyn
Menas S Gregory	63	Albany	November 2	Manhattan
Charles W Heywood	70	Northwestern	October 31	Utica
William J Mulheran	64	Syracuse	November 7	Syracuse
Herman Schwartz	65	Univ & Bell	August 20	Manhattan
Seth Selig	44	P & S N Y	November 2	Manhattan
Adolph M Silten	63	Berlin	November 3	Manhattan
Eugene W Skelton	70	L. I. C. Hospital	October 30	Brooklyn
Max Talmey	74	Munich	November 6	Manhattan

Public Health News

SULFADIAZINE IN THE TREATMENT OF PNEUMONIA

HENRY VAN ZILE HYDE, M D, Albany, New York

IF WIDE usage of sulfadiazine substantiates the predictions made on the basis of studies thus far reported, this drug may replace to a large extent other sulfonamides in the therapy of pneumonia. On preliminary study it appears to be effective in combating pneumococcic infection experimentally¹ and clinically²⁻⁵ and to be less toxic^{1,4,5} than its predecessors. A summary of the present knowledge concerning the drug is presented, subject to change as more information becomes available.

Effectiveness—Animal studies indicate that sulfadiazine is effective against the beta-hemolytic streptococcus, pneumococcus, staphylococcus, and type B Friedländer bacillus.¹ The relative bacteriostatic efficacy of the several drugs has not as yet been fully determined. Clinical experience indicates, however, that sulfadiazine is probably as effective an agent as sulfapyridine and sulfathiazole in the treatment of pneumococcic pneumonia. Limited experience indicates that it is an effective agent in the treatment of pneumonia due to hemolytic streptococcus and Staphylococcus aureus.

Absorption—Those who have studied the absorption of sulfadiazine after a single dose¹⁻⁵ are in general agreement that the drug is readily absorbed from the gastrointestinal tract, reaching peak blood concentrations in from four to eight hours, and is maintained at relatively high levels in the blood for twelve to eighteen hours after administration. Sodium sulfadiazine is readily absorbed from the subcutaneous tissues.⁴ Both sulfadiazine and its sodium salt are poorly absorbed from the rectum.⁴

Distribution in Body Fluids—The few observations thus far reported indicate that in pleural and peritoneal fluids the drug attains concentrations about equal to those in the blood. In spinal fluid, concentrations that are about 50 to 80 per cent of those in the blood are usually attained.²⁻⁵ During oral administration these concentrations are reached in about twenty-four hours, whereas they are reached in eight to twelve hours after intravenous administration.

Excretion—The drug is excreted by the kidneys and is largely recovered from the urine during the period of administration and the five succeeding days. The acetylated form is excreted rapidly,^{2,4} leaving a relatively low concentration of acetyl sulfadiazine in the blood. As found in the urine, the drug is usually about one-third conjugated. Acetyl sulfadiazine is more soluble in urine than is acetyl sulfapyridine or acetyl sulfathiazole.¹

Indications—An inclusive statement concerning indications would be premature at the pres-

ent time. Experience with the drug in various clinics warrants, however, the assertion that sulfadiazine may be used justifiably in pneumococcic pneumonia and probably in pneumonias due to hemolytic streptococcus or Staph. aureus. As experience is broadened, sulfadiazine may find a much wider field of usefulness.

Contraindications—As with any sulfonamide compound, the contraindications to sulfadiazine therapy must always be considered in relation to the severity of the infection under treatment, the urgency of the need for sulfonamide therapy, and the availability of alternative forms of treatment. A history of serious toxic reaction to any of the drugs of the sulfonamide group and renal disease, especially in the presence of nitrogen retention, should be considered definite contraindications except under unusual circumstances. If a sulfonamide is administered in the face of suspected diminution of renal function, it is essential to follow the blood level of the drug in order to avoid dangerous accumulation within the body and to observe carefully the fluid output in order to detect immediately any tendency toward renal block. The phenosulfonphthalein excretion is a reliable index of the capacity of the kidney to excrete sulfonamides.¹²

Dosage—Because of the low incidence of gastric reaction, it is usually possible in the adult to give an initial oral dose of 3 to 4 Gm of sulfadiazine. This is followed by 1 Gm every four hours, day and night. Since the drug is slowly excreted, 1.5 to 2 Gm. may be given at the midnight dose, the patient being allowed to sleep for eight hours without further administration during that interval. The drug should be continued for thirty-six to forty-eight hours following apparent recovery by crisis or lysis in order to prevent recurrences. During the postfebrile period it may be given in 1-Gm. doses at six-hour intervals. On theoretic ground, it should be continued at full dosage, rather than be tapered off, because of the danger of the possible development of drug resistance on the part of the microorganisms when exposed to the low blood concentrations attained with small doses. Administration should not be continued any longer than necessary for proper control of the infection because of the danger of toxic reactions. If a recrudescence of infection occurs following interruption of treatment, the drug should be readministered in full doses, starting with 3 to 4 Gm.

In severe infections it is advisable to give an initial intravenous dose in order to reach a high blood concentration immediately.

The dosage for children¹¹ weighing 70 to 80 pounds or less, recommended for severe infections, is an initial dose of 35 to 75 mg per kilogram ($\frac{1}{4}$ to $\frac{1}{2}$ grain per pound) of body weight, with a maintenance dose of 0.15 to 0.2 per kilogram (1 to $\frac{1}{2}$ grains per pound) per twenty-four hours. The initial dose should not exceed 5 Gm (75 grains). The twenty-four-hour dose

From the Bureau of Pneumonia Control, New York State Department of Health, Albany

I am particularly indebted to the following authorities on pneumonia for their suggestions and criticisms: Drs. Jesse G. M. Bullowa, Maxwell Finland, and Norman Plummer

is divided into four equal parts and given at six-hour intervals. This dosage usually maintains an average blood level of 8 to 12 mg per hundred cubic centimeters. After the first few days, in a patient responding well, this dose, which is relatively higher than that recommended for adults, can be reduced by one-half and given at eight-hour intervals for an additional forty-eight to seventy-two hours. In children over 70 to 80 pounds in weight, the dosage can be based on the adult schedule, with an initial dose of from 2 to 3 Gm.

Parenteral Administration—Parenteral administration should be reserved for cases in which the drug cannot readily be administered orally in full dosage and for cases in which the prompt attainment of high blood concentrations is essential. Frequent determination of the blood level should be made as a guide to dosage in cases being treated parenterally. Levels of 8 to 15 mg per hundred cubic centimeters of blood should be maintained in seriously ill patients.

Intravenous Sodium sulfadiazine may be administered intravenously in 5 per cent concentration in sterile distilled water and should be injected slowly with strict precautions against extravasation. Two and one-half to 4 Gm may be given as the initial adult dose. If the former is used, it is advisable to give a second dose of 2.5 Gm. in four to six hours. Succeeding doses must depend on the blood concentrations obtained, since there is great variation in levels in different individuals on repeated intravenous administration. Without observation of blood levels, dangerously high concentrations may be reached.

Subcutaneous Sodium sulfadiazine may be given subcutaneously in 0.5 per cent concentration in physiologic saline solution, taking one-half to one hour for the injection. Four grams in 800 to 1,000 cc of physiologic saline can be given in this way, repeated after eight to twelve hours, depending upon the blood concentrations maintained and the ability of patient to take supplementary drug by mouth.

Toxic Reactions—Although the present limited experience with sulfadiazine indicates that toxic reactions are less frequent than is the case with other sulfonamides, it has been found that the same types of reactions do occur and may be serious if not detected early and properly treated.

Gastric reactions are rare as compared with sulapyridine and are distinctly less frequent than with sulfathiazole. Drug fever and rashes have been observed. Hematuria occurs and may be followed by anuria. It is essential to observe the urine daily for evidence of blood and to measure and record the total fluid intake and output. Carelessness due to a false sense of security in this new drug has already resulted in unfortunate and unnecessary fatalities due to renal block.

No severe blood dyscrasias have been reported as yet. The potential danger to the leukopoietic system has not been fully assayed, so that close observation and withdrawal of drug in the face of granulocytic depression are necessary in the light of present knowledge. Cases in which the admission blood count showed marked depression of the total white count but with a satisfactory percentage (40 per cent or above) of granulocytes have been treated successfully with sulfadiazine, and the white count has increased under treatment. A distinction must be made, therefore, between general leukocytic depression associated with severe infection and specific granulocytic depression due to drug toxicity. In the former, the drug is strongly indicated, in the latter, it must be withdrawn. The distinction can be made only by differential counts made before and during the administration of the drug.

In view of the limited experience with sulfadiazine it would seem hazardous at the present time to relax the vigilance with which sulfonamide patients are, or should be, observed.

The addition of sulfadiazine to the sulfonamide group does not change in any way the fundamental and generally accepted principles underlying the proper management of pneumonia. These principles emphasize the importance of the following points:

Early diagnosis and prompt institution of sulfonamide therapy

Immediate sputum typing and blood culture

Proper nursing care and isolation of patient

Administration of serum in the absence of adequate response to the drug within twenty-four to forty-eight hours. It is the opinion of the majority of experts that serum should be given promptly—in addition to the drug—in patients over 50 years of age, in the presence of bacteremia, and in the treatment of pregnant women.

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HAPPY HOME DEPARTMENT

Doctor "There's plenty of time for our daughter to think about marriage. Let her wait till the right man comes along."

Wife "Why should she? I didn't!"—Smiles

ALL EXPLAINED NOW

Out of every hundred women between the ages of 33 and 35, fifty must diet to reduce, and fifty just naturally shrink from work.

—Rocky Mountain M. J.

Medical Preparedness

NAVY PERSONNEL

REAR ADMIRAL ADOLPHUS ANDREWS, U S Navy, Commandant, Third Naval District

IT IS an unusual pleasure for me to stand here before so many physicians and dentists secure in the feeling that for once in my life I am not to be subjected to the multitude of thumpings, probings, drillings, and specimen-takings that ordinarily feature my personal relationships with the members of your professions.

I have always felt that there is nothing that puts a man on the defensive quicker than to deprive him of his clothes and then set grimly to work on his superstructure with a range finder, a listening device, and several direct hits amidships. So you can readily estimate my feeling of relief in being able to be with you officers and still retain a little more than my shirt and, also, not be forced to express my few words of greeting in competition with a dentist's drill.

As the Commandant of the Third Naval District and Commander of the newly created North Atlantic Coastal Frontier Defense responsible for both the fitness and performance of tens of thousands of Navy personnel, I cannot over-emphasize to you doctors the great importance of your work as Naval officers.

The Navy needs men. The Navy has now undertaken a mighty effort, but there is an infinitely greater and more crucial task ahead.

The number of men required for our rapidly expanding fleet is vital to the success of our entire program, but mere quantity has never been the paramount thing in our Navy and never will be. In both men and ships *quality* is that decisive factor on which depends our capacity to bring to a successful conclusion the tremendously important mission that our inspired Commander-in-Chief has given us. In this respect it is my firm conviction that the proper selection and care of Navy personnel from a medical standpoint is of equal importance with their professional qualifications.

America's dominant position on the seas of the world today rests squarely upon two fundamentals: the superior ability of each man to excel in the performance of his individual duty and our steadily increasing superiority in the finest of modern combatant ships.

We all realize that no man can do his job if he is not qualified physically and mentally, as well as professionally. The most powerful ship afloat is only as effective as the crew that mans her. After all it is the man behind the gun. If his morale is low, if his physical condition is below par, his efficiency and effectiveness will suffer in direct and dangerous proportion.

Another important contribution that the medical and dental officers make to the well-being of our Service is in the careful examination of new personnel. There is no place in the Navy for men who deviate in the slightest way from the

highest physical standards. There is a twofold and obvious reason for this. First of all, the work that our men are required to perform demands superb physical and mental equipment. No man can be depended upon to handle the intricate mechanism of a modern man of war unless he is sound both in body and mind. Second, any person on active duty who acquires a disability for which he has to be retired is subject to retirement benefits for the rest of his life. The Navy is prepared to take ample care of its disabled members, but reason tells us that any laxity on the part of examining physicians might very well create a serious situation.

No doubt you are all interested in hearing some up-to-date information on the development of our Navy. Before I give you some details of the greatest naval expansion program in history, let me advise you that at this very instant our present fleet is the most efficient fighting fleet afloat. The fleet is ready—stripped for action. In tactics, gunnery, morale, and every other factor it is superior. Our naval aviation arm is greater in both numbers and performance than that of any other navy in the world. Make no mistake about our first line of defense. This is no idle boast and is not prompted by my pride in our Service but can be stated as a simple and powerful fact.

As you may know, I have recently finished three years at sea. When I relinquished command of the scouting force of the United States Fleet, that advance unit of the Navy had undergone twenty-four months of the most extensive training exercises ever performed. It was then—and is now—ready for immediate action.

Meanwhile, we are constructing the most powerful fleet that ever sailed the seas. When completed, the United States will have 32 battleships, 18 aircraft carriers, 91 light and heavy cruisers, 364 destroyers, and 188 submarines. This vast fleet will consist of 691 combatant vessels with 731 ships in all.

We have set the signal for "full speed ahead" to accomplish this program. Every shipyard capable of meeting our needs is operating at full capacity. Many new yards are being opened, and we are farming out widespread production contracts and constantly searching for new production units.

Sea power is as important today as it ever has been. Upon it rests our security, the fate of this Nation—with sea power this war will be won. As Admiral Thomas C. Hart so aptly said: "If unhappily our nation does have to enter into a dispute for the vital control of the seas—these seas or any other seas—I not only hope but I feel sure that you will not be hampered in the use of these seas for very long."

Personnel is one of our important problems and one in which you doctors play a particularly important part. We are enlisting men at the rate of over 10,000 per month. New training stations have been created, but this does not

An address given at a dinner of the Naval Reserve Medical and Dental Officers Association at the Naval Hospital New York City on October 29 1941

solve our problem entirely. Officers' schools are augmenting the United States Naval Academy so that new junior officers are being delivered to the fleet at the rate of 5,000 per year. Moreover, we have more than 12,000 Reserve officers on active duty. To man our future Navy we will need, afloat and ashore, a total of approximately 33,500 officers and 461,000 enlisted men. We now have over 200,000 enlisted men and more are coming each day.

Obviously, the medical facilities of the Navy must expand in proportion. In this respect you doctors can perform a special service to the Navy by urging your professional associates to volunteer their services just as you have. For the year starting July 1, the Third Naval District must furnish 284 new medical officers and 100 new dental officers. Encouraging progress has been made but much remains to be done, and you are the men we are counting on to do it.

Many of you have been called to active duty. Many more will be. All should be in readiness for immediate call. As Reserve officers, you have a duty to give yourself the greatest possible preparation for service. You have numerous correspondence courses and many other ways to equip yourselves so that you will be able to justify the confidence that the Navy places in you.

From long and intimate experience I am keenly aware of the great part played by the medical and dental officers of the Navy. I am delighted

that this opportunity has been presented for me to pay a well-deserved tribute to our splendid medical officers of our regular Navy and to the unselfish, enlightened patriotism that prompted you to offer your services to your country. In this critical period of the world's history, service in the Navy is service to the cause of humanity, to the cause of peace, and to the preservation of the flame of freedom to which untold generations have sacrificed their lives.

There is a particular appreciation due to men like yourselves—men trained to be leaders in your fields—because you have in many cases sacrificed far more lucrative endeavors in civil life to put your skill and experience at the call of your country. The Navy needs such help and is grateful for it. I can assure you that your return in satisfaction will be a far richer heritage.

The fate, gentlemen, of many centuries of human advancement and even of civilization itself is resting now more heavily than ever before on the guns and men of the United States Fleet. The Navy is ready, willing and able to assume this burden. Confident of the outcome and fully aware of its responsibilities, the Navy is girding itself for its mightiest effort. So to you officers, as a vital part of that Navy, I say "Stand By!" and prepare yourselves thoroughly for the work ahead. Good luck to you and many thanks for having me with you.

NEW PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS, AND VETERINARIANS

The functions of the new Procurement and Assignment Service for Physicians, Dentists, and Veterinarians, just created by the President as a part of the Office of Defense, Health, and Welfare Services, are outlined in an editorial in the *Journal of the American Medical Association* for November 8. The scope of the problems confronting the new agency also is presented in the same issue of the *Journal* in an analysis of the nation's physician requirements which reveals that, even without any sudden expansion of the Army, between 2,000 and 3,000 physicians will be needed by various governmental agencies during the next year. The seriousness of this situation can be realized when it is pointed out that approximately 5,000 physicians are graduated by medical schools each year, barely sufficient to replace the number who die annually.

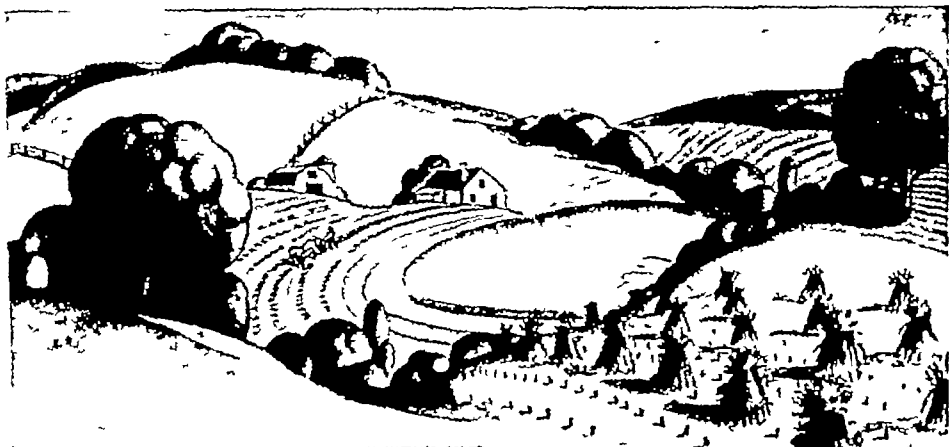
The *Journal's* editorial points out that "One of the most significant actions taken by the House of Delegates at the annual session of the American Medical Association held in Cleveland in June was its approval of a resolution introduced by the Committee on Medical Preparedness urging that the United States government establish an agency for the procurement and assignment of physicians to meet the many needs arising out of the emergency in which the nation finds itself."

"On Friday, October 31, the President of the United States approved an order establishing a Procurement and Assignment Service for Physicians, Dentists, and Veterinarians as a part of the Office of Defense, Health and Welfare Services under the direction of Mr. Paul V. McNutt to stimulate voluntary enrollment of

these professions. The resolution of the House of Delegates also urged that this agency be under the direction of representatives of the civilian medical profession. The President has appointed as a board to administer the new service the following members: Chairman, Dr. Frank H. Lahey, president of the American Medical Association; Dr. Harold S. Diehl, dean of the medical school of the University of Minnesota and a member of the Education Committee of the Health and Medical Committee; Dr. James E. Paulin, who is retiring president of the American College of Physicians and chairman of the Council on Scientific Assembly of the American Medical Association and also a member of the Committee on Medical Preparedness; Dr. Harvey B. Stone, a member of the House of Delegates of the American Medical Association, of the Committee on Medical Preparedness, and of the Council on Medical Education and Hospitals; and Dr. Caleb Willard Camahner, Jr., Washington, D. C., a past-president of the American Dental Association and a member of its Committee on Medical Preparedness.

"The functions of the agency now established include primarily the procurement of personnel from existing qualified members of the professions concerned. It is proposed that various governmental and other agencies requiring professional personnel for needs related to the emergency shall send their requests to the Procurement and Assignment Service indicating the number of men desired, the time during which they must be secured, and the qualifications and limitations placed on such personnel. The Service

[Continued on page 2360]



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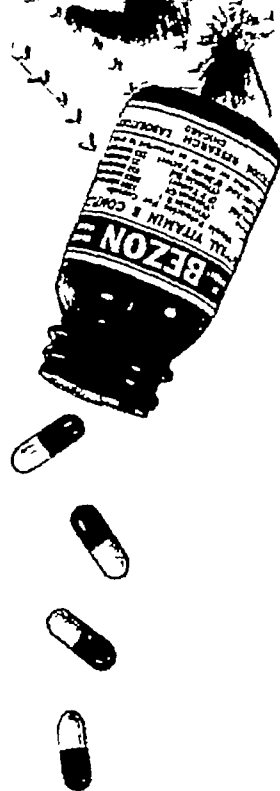
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MEDICAL PREPAREDNESS

[N Y State J M

[Continued from page 2358]

may then by appropriate mechanism arrange to secure lists of professional personnel available to meet these requirements, utilizing existing rosters such as the one now available in the headquarters of the American Medical Association and of the American Dental Association, or other public and private rosters which it may consider acceptable. The agency is also authorized to approach such professional personnel as are considered to be available and to use suitable means to stimulate voluntary enrollment. Emphasis should be placed on the fact that voluntary enrollment is desired and that modern means of procurement will be utilized. Already the states and many of the counties of the United States have been organized for military medical preparedness through the Committee on Medical Preparedness of the American Medical Association. Thus it becomes possible to determine availability of various physicians and their qualifications for special services. Obviously it is possible also in this way to protect the civilian needs of American communities.

"In its work the Procurement and Assignment Service is authorized to procure an executive secretary who shall serve as executive officer and who is to be a full time appointee with a salary. The members of the board which administers the agency are to serve, as does the Health and Medical Committee, whose organization it parallels, without salary. The board is authorized to secure such necessary assistants as may be required, to establish advisory committees and subcommittees representing the various interests which may be concerned, to develop suitable liaison with governmental and private agencies, to establish suboffices if they are required, and indeed to do almost everything, short of compulsion, that may be useful in supplying the Army, the Navy, the Public Health Service, essential industries and the civilian population with necessary professional personnel.

"Recently the *Journal* called attention to the problem created by failure of junior and senior medical students and of interns to avail themselves of the opportunities offered by the Army and Navy medical departments to become enrolled in official agencies which would make them available when called as commissioned medical officers. No doubt the new Procurement and Assignment Service will give special consideration to this phase of the problem. From the reservoir of young physicians coming into the practice of medicine must be obtained the majority of those needed for replacement of physicians now in service as members of the reserve corps. Should there be a sudden large expansion of our army, the number of physicians needed might approach ten thousand or more. The securing of these men could be brought about without jeopardizing the health of the nation by utilizing the complete cooperation of the medical profession."

In the Medical Preparedness Section of the same issue of the *Journal* appears an analysis of

the present situation as regards the supply of physicians in the present emergency. Pointing out that the officers in the Medical Department of the Army today include 11,465 physicians in the Medical Corps, of whom 8,983 are Reserve officers, 1,250 regular officers and 1,232 National Guard officers, the *Journal* says that "there is at present a shortage of 1,473 medical officers. Should the Army not be greatly expanded within the next year but continue with a training program of about the present scope, a maximum of approximately 3,200 replacements would be required each year for the next five years during the period of the Selective Service Act. It is estimated that approximately two-thirds of the physicians now in service would elect to remain for the period of the emergency. If, however, it should not be possible to retain these men in service, the number needed for replacement would be considerably expanded."

In the Navy approximately 100 physicians are required at the present time as replacements and it appears that with the expansion now in prospect another 700 would be required by next July. To meet this need the Navy has a pool of 1,000 in its Reserve Corps. The calling up of these men obviously would reduce the number of physicians available for civilian and nonmilitary needs.

The United States Public Health Service requires about 35 new officers each year to meet its normal requirements for replacements, but in view of the present expanded activities approximately 100 interns in public health service institutions will be required within the next year. In addition, state health departments require about 150 additional physicians to meet new expansions.

The United States Veterans' Bureau now has about 1,800 physicians in full-time positions, about 500 of whom are in the United States Army Medical Reserve Corps. These 500 will require replacement if they resign their commissions in the Reserve Corps or if they elect to accept active duty with the Army.

The various federal agencies provided physicians by the Civil Service Commission employ about 2,500 doctors and need about 400 new men for replacements or for new positions each year. For the present fiscal year they lack 250 physicians to meet their requirements.

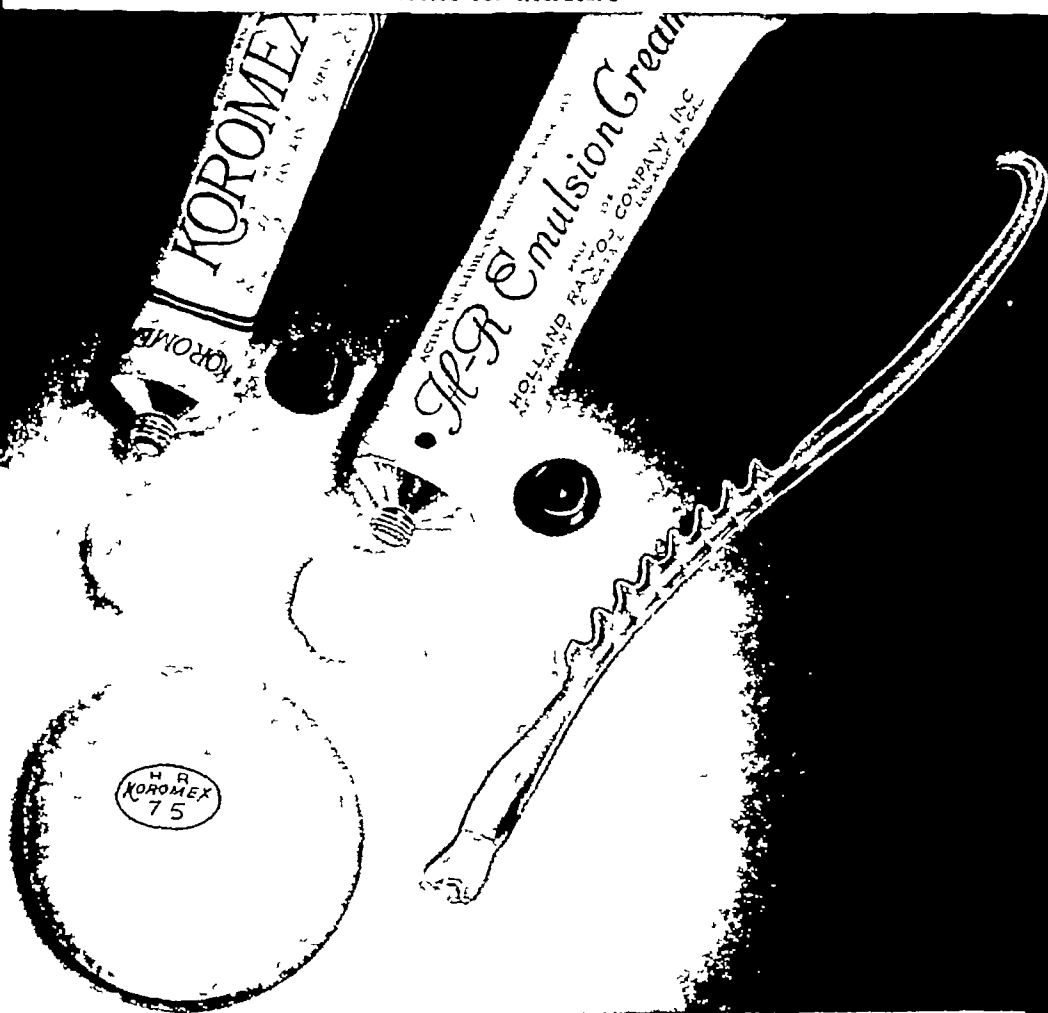
It is also pointed out in the analysis that the approximately 5,000 physicians graduated from medical schools of the United States each year are about the number needed to supply the hospitals capable of extending the education of the young physician by an internship with the interns that they require. Many smaller hospitals now are finding it difficult, if not impossible, to secure interns.

In addition to the demands made on the medical profession by the various governmental services there also is the necessity for some service related to civilian defense, to the Selective Service, and to expanded war industries.

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Woman's Auxiliary

To the Medical Society of the State of New York

MRS John L. Bauer tells us in our national *Bulletin* that the functions of the State Auxiliary may be listed thus: To help with the entertainment of the wives of doctors at the state medical society meetings, to aid in the program on health education, to take active part in all public health movements, to encourage periodic health examinations, to encourage birth registration work, to aid in securing better medical legislation, to assist families of doctors in need, to promote *Hygeia*.

These are but a few of the many worthwhile reasons for a state auxiliary.

County News

Albany. At the last meeting held at the Nurses' Auditorium of the Albany Hospital fifty-five members and thirty-nine invited guests were present. Dr. John M. Swan spoke on "Choose to Live." Movies illustrated the talk. Dr. Swan is executive secretary of the State Committee of the American Society for the Control of Cancer.

The open meeting was so successful that the November meeting was also opened for invited guests. Dr. Harold Street, of the Winthrop Chemical Company, gave a talk on vitamins.

Fulton. At a recent meeting held at the Eugene Lettaver Memorial Laboratory, Mrs. J. Edward Grant, president, presided. The chairman of committees gave reports. Mrs. Leslie Backus, hospitality chairman, reported on the successful and enjoyable dinner held at Newman's Lake House, Saratoga. Mrs. Grace Taylor Fryc, secretary of the Gloversville Red Cross, gave an interesting and instructive talk on the work of the Red Cross since its forming and asked for full cooperation and help at this critical time. Mrs. Louis Tremante and Mrs. Arthur Wilsey represented the auxiliary at a Nutrition Dinner at the Hotel Johnstown.

Jefferson. On November 13 a dinner was held at the Black River Valley Club. The project that the auxiliary members are working on now is the sale of Christmas Seals for the tuberculosis campaign.

Montgomery. At the October meeting held at St. Mary's Hospital, Mrs. Josephine Secor, district supervising nurse of Amsterdam district of the New York State Department of Health was guest speaker. Mrs. Secor explained the value of the auxiliary's participation in home hygiene and first-aid classes. She also told of the need for all individuals to be prepared to meet an emergency. At the business meeting, plans for the coming year were made. Those present were: Mrs. S. L. Homrighouse, Mrs. Walter Dreyfuss, Mrs. Max Gutman, Mrs. James P. Curran, Mrs. Leonard M. McGugan, Mrs. William H. Seward, Mrs. Edwin B. Kelly, Mrs. Edward A. Bogdan, Mrs. Roman R. Violyn, Mrs. P. J. Fitzgibbons, Mrs. Melvin T. Woodhead, Mrs. Martin F. Geruso, Mrs. John G. Butkus (Hagaman), Mrs. Raymond E. Wytrwal (St. Johnsville), and Mrs. Josephine Secor.

Nassau. On Saturday, December 6, the Medical Society and Auxiliary Dinner-Dance will be held. On Tuesday, December 16, at the Nassau Hospital Auditorium at 8:30 P.M., the auxiliary Christmas party will take place.

Onondaga. The November meeting was held at the Nurses' Recreation Hall of the Syracuse Memorial Hospital. Forty-two members were present. Dr. Eugene Davidoff of the Syracuse Psychopathic Hospital Staff gave an address on "Child Guidance and Mental Hygiene."

Mrs. Walter W. Street, first vice-president, presided at the meeting in the absence of Mrs. Edgar M. Neptune, president. Mrs. Nobel Chambers, chairman of public relations, announced her chairman of the various charitable endeavors planned for the year. Mrs. Mortimer G. Brown heads the auxiliary group of volunteers at the Syracuse Free Dispensary, Mrs. Brewster Doust, the workers on nutrition, Mrs. P. K. Menzies, the work on the collection of surgical instruments for Bundles for Britain, and Mrs. Oren D. Chapman, the Red Cross work. Mrs. Neil Paul, chairman of *Hygeia* magazine, gave an enthusiastic report, hoping to swell the sale of subscriptions for this year.

Mrs. Winthrop Pennock will be the guest of honor and speaker at a formal dinner for members of the auxiliary to be given at the Hotel Syracuse on Tuesday evening, December 2, at seven o'clock. All members are cordially encouraged to attend. Mrs. John Buettner and Mrs. Francis Irving are general chairmen.

Mrs. Ferdinand Schoeneck is chairman of the hostess committee and is assisted by Mrs. Ellery Allen, Mrs. Wardner Ayer, Mrs. Robert K. Brewer, Mrs. Jerome E. Alderman, Mrs. Joseph I. Alpenn, Mrs. William E. Ayling, Mrs. George Andrews, Mrs. Armand Aqualino, Mrs. Albert Bailey, Mrs. James Brown, of Cleveland, Mrs. Eugene Bogardus, and Mrs. P. F. Britt.

Queens. At the regular meeting on October 28 Mrs. Michael M. Schultz, president, presided. Mrs. Thomas D'Angelo, chairman of Red Cross, reported 572 hours' work turned in, and service pins were awarded to Mrs. Alfred Angrist and Mrs. Walter J. Lynch. The success of the Health Defense program was due to the hard work of Mrs. Lynch and her committee. An all-day program of the Second District New York Medical Society was held October 30, at Garden City. Mrs. William Godfrey was in charge of the luncheon and Mrs. John Finnigan was in charge of the bridge.

Mrs. Michael M. Schultz entertained twenty-five members of the Executive Board at a luncheon at the North Hills Country Club on November 10. The regular meeting followed. Election of officers took place at the meeting on November 25. Mrs. Irving Poneman is chairman of the nominating committee. The proceeds of the dinner-dance held on November 15 were turned over to the medical society.

[Continued on page 2364]

AFTER FORTY CENTURIES...



"They purge themselves every month, three days in succession," says Herodotus, seeking to preserve health by emetics and clysters. — Garrison History of Medicine, pg. 41.

AFTER 40 centuries—or more—of purges, cathartics, 'roughage' and enemas, a rational regimen for the spastic bowel has been evolved

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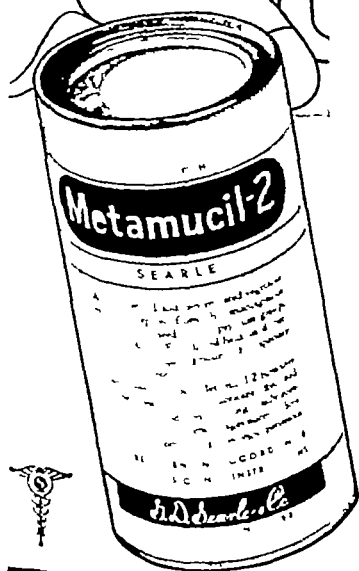
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CHICAGO

New York

Kansas City

San Francisco



[Continued from page 2362]

Rensselaer The auxiliary decided to continue the drive to have houses in the city of Troy numbered so well that Doctors will lose no time on their calls. The subject was presented again to the City Council and the Police Department. The members planned to sew at the Hospital.

Schenectady The possibility of establishing a First-Aid Red Cross Course was discussed at the October meeting. This activity is being conducted by Mrs. Francis Mulcare. The auxiliary was represented at the Fourth District

Branch meeting which was held at Lake Placid in September. The members who attended were Mrs. William E. Gazeley, Mrs. A. H. Congdon, Mrs. F. Leshe Sullivan, Mrs. Albert Grussner, Mrs. James E. Blake, Mrs. George Van Borstel, Mrs. T. L. Lyons, Mrs. D. H. Lester, Mrs. B. L. Vosburgh, and Mrs. W. C. Treder.

Save Your Dimes for Convention Time
The Place The Waldorf-Astoria
The Time April 27, 28, 29, and 30, 1942

SYPHILIS RATE OF 45.2 CASES

"per thousand persons examined was found through physical examinations and routine serologic blood tests of the first million selectees and volunteers called for classification under the Selective Service Act of 1940," R. A. Vonderlehr, M.D., and Lida J. Usilton, M.A., Washington D.C., report in the *Journal of the American Medical Association* for October 18.

"The greatest prevalence of syphilis among the selectees and volunteers was reported by Florida and South Carolina, with rates of 170.1 and 156 cases per thousand, respectively," they say. "The lowest rate, of 5.8 per thousand, was reported by New Hampshire. Seven Southern states and the District of Columbia reported rates in excess of 100 cases per thousand. The rate for Negroes is consistently higher than that for white men in all the states. There are indications that high rates among the whites are coincidental with high rates among the Negroes. For the country as a whole, the prevalence of syphilis among negro selectees and volunteers is thirteen times that for the white. In twenty states and the District of Columbia the negro rate is in excess of ten times that of the white."

THE NOSE KNOWS

How to answer a phone call, yet avoid having to make a needless visit to a patient, is disclosed by an unnamed physician-correspondent of the *British Lancet*. His letter says, in part:

"To answer in your own voice is to be left defenseless in case of an unurgent call, and few people can disguise their voices effectively. Now—grasp the telephone in your right hand and your nose in your left."

"Is the doctor in?"

"I don't think he is, but I'll go and see. Who is it speaking, please?" says a strange nasal voice that you wouldn't recognize yourself.

"Lay down the phone and tap with your foot on the floor, *diminuendo*. That is Nosey going away to find the doctor. You may breathe naturally now and think the matter out. After a suitable interval you tap on the floor with your foot again, this time *crescendo*, pick up the phone, and (a) gripping the nose as before 'I'm sorry, the doctor isn't in at present. Can I take a message, Mum?' or (b) in your own voice 'Hello, Jones, about that match.'"

—*Medical Economics*

HEALTH EDUCATION CONSULTANTS TO BE ASSIGNED TO KEY DEFENSE AREAS

A vital part of this nation's "all-out" defense effort is the safeguarding of its health. The rapid growth in industrial and governmental production has caused unusual concentrations of population and increasing health problems. To assist state, county and local health officials in coping with these problems, the U. S. Public Health Service is planning to appoint health education consultants to various defense areas. The positions, paying \$2,600 to \$3,800 a year, will be filled through the open competitive examination process and the Federal Civil Service Commission has just issued the examination announcement. A written test will not be given, but applicants will be rated on their qualifications as shown in their applications and corroborative evidence.

Appointees will work with local health officers and their staffs, advising them as to methods, and procedures of health education such as individual instruction through interview, group

instruction through discussions, talks, lectures, and other educational techniques. To qualify for the positions, applicants must have completed a four-year college course, including or supplemented by special study—or for the assistant grade, experience—in public health. In addition, they must have had experience in public health education work coordinating the activities of all organized health groups in a community for the purpose of promoting a public health program. This experience must have been in a federal, state, or official local public health department or in a voluntary agency such as the Red Cross, Tuberculosis Association, or the like.

Applications must be filed with the Civil Service Commission in Washington, D.C., not later than December 11, 1941. The examination announcement giving detailed requirements can be consulted or obtained at any first- or second-class post office or at the central office.

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TRAVEL MEDICINE

"We are hunters pursuing the Summer on snowshoes
 and skates, all Winter long There is really but one sea-
 son in our hearts," wrote Thoreau

Winter vacationing has changed some since "dad
 was a boy" and considerably since Thoreau wrote the
 idea of no definite season for travel, so pointedly

Those were the days when travel horizons were limited
 and vacations for the average person were one-day holi-
 days. Weekends were not popular as an opportunity to
 spend two days and three nights hundreds of miles away
 from the home fires. A trip to Florida was unheard of
 off Park Avenue or whatever street it was that the four-
 hundred wintered on in those days

Common travel opportunities, increasing from year to
 year, have done much to raise the standards of living
 When you find more than half of a nation travel-minded,
 there is bound to be improvements in hygiene at home

No one can stay at modern hotels and mingle with others
 from every point of the compass without wanting to im-
 prove daily living and conditions at home

Travel methods, too, have changed. The open high-
 way has no discrimination It supports the most eco-
 nomical conveyance as well as the most luxurious motor
 car The railway coach, today, is superior to the parlor
 car of even a decade past And, the skyways even carry
 the ski enthusiast to trails that would otherwise be far
 beyond reach

The only sad note in the vast improvements is the
 fast disappearing explorations by foot Even the tramp
 can thumb a way to cover ground more quickly and more
 lazily

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 now use up more trousers

And, everybody seems happy just the same

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 acres of landscaped lawns. Five buildings (two devoted exclu-
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[Continued from page 2362]

Rensselaer The auxiliary decided to continue the drive to have houses in the city of Troy numbered so well that Doctors will lose no time on their calls. The subject was presented again to the City Council and the Police Department. The members planned to sew at the Hospital.

Schenectady The possibility of establishing a First-Aid Red Cross Course was discussed at the October meeting. This activity is being conducted by Mrs. Francis Mulcare. The auxiliary was represented at the Fourth District

Branch meeting which was held at Lake Placid in September. The members who attended were Mrs. William E. Gazeley, Mrs. A. H. Congdon, Mrs. F. Leah Sullivan, Mrs. Albert Grussner, Mrs. James E. Blake, Mrs. George Van Borstel, Mrs. T. L. Lyons, Mrs. D. H. Lester, Mrs. B. L. Vosburgh, and Mrs. W. C. Treder.

Save Your Dimes for Convention Time.

The Place The Waldorf-Astoria.

The Time April 27, 28, 29, and 30, 1942

SYPHILIS RATE OF 45.2 CASES

"per thousand persons examined was found through physical examinations and routine serologic blood tests of the first million selectees and volunteers called for classification under the Selective Service Act of 1940," R. A. Vonderlehr, M.D., and Lida J. Usilton, M.A., Washington D. C., report in the *Journal of the American Medical Association* for October 18.

"The greatest prevalence of syphilis among the selectees and volunteers was reported by Florida and South Carolina, with rates of 170.1 and 156 cases per thousand, respectively," they say. "The lowest rate, of 5.8 per thousand, was reported by New Hampshire. Seven Southern states and the District of Columbia reported rates in excess of 100 cases per thousand. The rate for Negroes is consistently higher than that for white men in all the states. There are indications that high rates among the whites are coincidental with high rates among the Negroes. For the country as a whole, the prevalence of syphilis among negro selectees and volunteers is thirteen times that for the white. In twenty states and the District of Columbia the negro rate is in excess of ten times that of the white

THE NOSE KNOWS

How to answer a phone call, yet avoid having to make a needless visit to a patient, is disclosed by an unnamed physician-correspondent of the *British Lancel*. His letter says, in part:

"To answer in your own voice is to be left defenseless in case of an unurgent call, and few people can disguise their voices effectively. Now—grasp the telephone in your right hand and your nose in your left.

"Is the doctor in?"

"I don't think he is, but I'll go and see. Who is it speaking, please?" says a strange nasal voice that you wouldn't recognize yourself.

"Lay down the phone and tap with your foot on the floor, *diminuendo*. That is Nosey going away to find the doctor. You may breathe naturally now and think the matter out. After a suitable interval you tap on the floor with your foot again, this time *crescendo*, pick up the phone, and (a) gripping the nose as before. 'I'm sorry, the doctor isn't in at present. Can I take a message, Mum?' or (b) in your own voice 'Hello, Jones, about that match.' "

—*Medical Economics*

HEALTH EDUCATION CONSULTANTS TO BE ASSIGNED TO KEY DEFENSE AREAS

A vital part of this nation's "all-out" defense effort is the safeguarding of its health. The rapid growth in industrial and governmental production has caused unusual concentrations of population and increasing health problems. To assist state, county and local health officials in coping with these problems, the U. S. Public Health Service is planning to appoint health education consultants to various defense areas. The positions, paying \$2,600 to \$3,800 a year, will be filled through the open competitive examination process and the Federal Civil Service Commission has just issued the examination announcement. A written test will not be given, but applicants will be rated on their qualifications as shown in their applications and corroborative evidence.

Appointees will work with local health officers and their staffs, advising them as to methods, and procedures of health education such as individual instruction through interview, group

instruction through discussions, talks, lectures, and other educational techniques. To qualify for the positions, applicants must have completed a four-year college course, including or supplemented by special study—or for the assistant grade, experience—in public health. In addition, they must have had experience in public health education work coordinating the activities of all organized health groups in a community for the purpose of promoting a public health program. This experience must have been in a federal, state, or official local public health department or in a voluntary agency such as the Red Cross, Tuberculosis Association, or the like.

Applications must be filed with the Civil Service Commission in Washington, D. C., not later than December 11, 1941. The examination announcement giving detailed requirements can be consulted or obtained at any first- or second-class post office or at the central office.

vertisement—or the advertisement has failed its purpose—to interest you.

Now you may ask, "What of it?"

Nothing—except that unless your "I Q" (in this case, "Inquisitive Quotient") is high enough to urge you to delve into even advertisements, you are not giving yourself the benefit of every angle of modern medicine

The Physician—History's Confederate

The father of the "Father of Our Country," Captain Augustine Washington, procured the services of a Dr. Green. In addition to the requirements of his medical abilities, it was the duty of Dr. Green to prescribe to the spiritual needs of the early settlers in that wilderness which has since become the City of Washington, Arlington, Alexandria, Mount Vernon, and vicinity

Dr. Green also gave spiritual as well as medical advice to the child George Washington while the Washington family were living in their Little Hunting Creek home. He continued these duties in the service of General and Mrs. George Washington and other members of the Washington family until his death in 1765

So the physician-preacher played just as important a role in the foundation of our country as did the patriots who rebelled for liberty ten years after his death. Dr. Green never lived to see his famous patient become the first President of a new nation and a leader of the greatest freedom human beings have ever enjoyed on this earth, but he had a share in our destinies for which we should acknowledge some indebtedness

For who knows how much of Washington's character, wisdom, and health this venerable old gentleman's medical and spiritual treatments were responsible for? Who knows how much a certain event at Yorktown depended on the patient, conscientious care of a simple, country doctor?

COT-TAR PIX-LITHANTHRACIS 5%

- Therapeutically active in eczema —particularly suitable in children's eczema
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CROSS-REFERENCE . . . It may be necessary at times to check the information provided in an advertisement on some particular product to be prescribed. To facilitate this, a cross index of advertisers and advertised products is published in every issue of the JOURNAL. We hope you will find it a convenient and useful instrument. In this issue see pages 2286 and 2368

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Cuts short the period of illness, relieves the distressing cough and gives the child rest and sleep. Also valuable in other PERSISTENT COUGHS and in BRONCHITIS and BRONCHIAL ASTHMA. In four-ounce original bottles. A teaspoonful every 3 or 4 hours.

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Convalescents, post operative and habit cases, for the aged and infirm and those with other chronic and nervous disorders

Separate accommodations for nervous and backward children

Physicians' treatments rigidly followed

WHAT ABOUT WHAT?

In one of his books, Mr Rudyard Kipling wrote so effectively—

"I have six honest serving men

They taught me all I know

Their names are *What* and *Where*, and *When*,

And *How*, and *Why*, and *Who* "

The youngest and perhaps busiest of these six brothers, is *Why*. He is the choicest friend of young children, answering their very first question and the millions of juvenile questions asked since the beginning of time

The second brother, *Who*, is also a busy chap, but often a bit of a snob. He is a pet of the gossips, yet wise, worldly wise and a great social consultant. The next in the family are the twins, *When* and *Where*. These friendly fellows are the directors who guide us out of problems

But *How* is even a more important adviser. He combines the knowledge of all the failures and successes of mankind. His true name is Experience. *How* is the faithful friend and guide to the creative talents of men, and the keeper of the keys to achievement. The older we get, the more we consult him and the more we depend on his guidance

Why and *Who*, and *When* and *Where*, and *How*, are inseparable and indispensable in the lives of every being. But what about *What* the sixth of these serving men of Kipling's?

What is the check-rein to our emotions—the chap who can save us from error. He is really the analyst, skilled in analyzing the action we should take or perhaps should not take. He is the shadow of his brothers, for we can seldom ask *Why*, *Who*, *Where*, *When* or *How*, without a complementary *What*.

Read a scientific article and you will question, perhaps only subconsciously—*Who* wrote it? (*What* can he tell me?) *Why* was it written? (*What* value has it?) *When* and *where* were the facts obtained? (*What* authority makes them valid?) *How* can the material serve me? (*What* shall I do with it?) And perhaps in conclusion—*What* do other doctors think of it?

The same gamut of questions will run their course if an advertisement arrests your attention. Unconsciously, you will ask the *Why* and the *What*, the *Where* and the *When*, and the *How* and the *Who*. If you do not, then you will fail to derive any benefit from reading the ad.

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See also our adv. p. 49a



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CLARENCE A. POTTER, M.D., Resident Physician

NEW YORK STATE JOURNAL OF MEDICINE

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Editorial

Christmas, 1941

Mr Winston Churchill in one of his early speeches referred to the achievements of Britain's air force in these words "Never was so much owed by so many to so few"

It is time that we consider a little when those words could have been spoken with equal applicability in former times

Certainly, as we approach the significant festival of the Nativity, the whole surviving Christian world, threatened with extinction of its religious beliefs, has reason to reflect upon its debt to the Jew of Nazareth and His twelve followers, one of them a physician

"Never was so much owed by so many to so few"

Are we prepared to begin repayment? The answer, this Christmas season, 1941, lies in the hearts and in the souls of all men of good will of all nations every-

where Clear-headed men are arising in wrath and indignation against the brokers of treason, the knavery of false leaders, against the proponents of slavery, against those who propose to provoke a war that is half peace in the hope of a peace that would be all war

"Never was so much owed by so many to so few"

Abraham Lincoln said in 1863, "and by virtue of the power and for the purpose aforesaid, I do order and declare that all persons held as slaves are, and henceforward shall be, free,

"that this nation, under God, shall have a new birth of freedom, and that government of the people, by the people, for the people, shall not perish from the earth"

"Never was so much owed by so many to so few"

Alcoholism a Challenge

Is alcoholism an insolvable problem? How long will it continue with sardonic hideousness, with all its consequences of "shattered prospects, blighted homes, crumbled faith of children, and the individual's own misery" to defy an all-out attack by the combined forces of modern science, modern medicine, modern sociology, and modern mental hygiene?

"Alcoholism," says Dr Eugene N Boudreau in a provocative article, "The Medical and Social Challenge of Alco-

holism," on page 2407 of this issue, "is a major health problem. It is a cancerous condition in our social fabric. I would have you disclaim and eliminate any ethical or moral qualifications and accept the fact that it is a malady—a sickness." In this manner does Dr Boudreau throw the problem squarely into the lap of medicine to be studied like any other disease, syphilis or tuberculosis, for example, without prejudice or bias



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his sins, his disgrace, his shame, his faithlessness to his obligations "In the name of family, associates, friends" and so on. This is done in the hope of "making a man of him," but it accomplishes little except to increase the load of guilt the sufferer carries, which is already part of

his unfortunate drive for release from the pain of his environment

Here, indeed, is a challenge, as Dr Boudreau points out To meet it calls for scientific, orderly changes in medical and social attitudes and the greatest possible use of every educational facility

The Good Doctor

Once upon a time there was a good¹ doctor ² He lived in a house³ with his wife,⁴ two children,⁵ and a F H A mortgage ⁶ He had an automobile ⁷

In the morning he took the children to school⁸ on his way to the clinic,⁹ where he spent the forenoon caring for the poor¹⁰ sick people without recompense ¹¹

One day¹² in the clinic⁹ in the course of his work¹³ he came across a lunatic,¹⁴ who said to him

"You think I'm crazy,¹⁵ don't you?"

"Yes," said the doctor, "I am afraid I do "

"Well, that's all right with me, would you care to know what I think of you?"

"Not particularly," said the doctor

"It's always that way," said the poor lunatic, apologetically, "and yet kings used to listen to us, you know, in the old days "

"I know," replied the doctor who was in a hurry to get through his work, "but those days are gone and so are the kings Besides," he added as an after thought, "they didn't pay any attention even then Next case "

So they took the poor zany¹⁶ to a state hospital where he got the best of everything for the rest of his life

The good doctor got in his automobile and drove home to his office As he put on his white coat and washed his hands before seeing the accumulated Customers¹⁷ he shook his head and murmured, sympathetically, "The poor nut "

Moral You never can tell

¹ Nuts.

¹⁶ Lunatic.

¹⁷ Patients.

¹ Term valid temporarily pending further court decisions.

² M.D., PH.D. D.P.H. M.A. D. L.L.D. Litt.D. D.O., D.D.S. V.M.D. ad infinitum.

³ Real estate tax.

⁴ Joint income tax returns required by law

⁵ Worth \$400 each for tax purposes

⁶ Interest payments deductible, not payments on principal

⁷ License tax. Drivers tax. Use tax. Gasoline tax.

⁸ Oil tax. Parts tax. Insurance.

⁹ School tax.

¹⁰ From Greek Kline a bed

¹¹ A person earning less than he used to

¹² Financial return.

¹³ Saturday March 15 1941

¹⁴ Practice of medicine.

¹⁵ From Latin Luna, the moon.

Hospitals, Attention¹

As we were going to press on December 9, the following telegram was received

Office of Civilian Defense requests you urge all hospitals to establish immediately emergency medical field units in accordance with plans outlined in Medical Division *Bulletins* No 1 and 2 and drill weekly Where necessary, reserve field units should also be organized with medical nursing and trained volunteer personnel derived from the community Urge immediate action

GEORGE BAEHR, M D
Chief Medical Officer

Such a challenge cannot be ignored or side-stepped. The last World War provoked a legislative onslaught, noble in motive, ill considered, ill conducted, disastrous in outcome, on the problem of the alcoholic. Now another period of world chaos finds us little more advanced in scientific knowledge of alcoholism, except perhaps that we know the legislative approach does not answer Omar's question.

"I wonder often what the Vintners buy
One half so precious as the stuff they sell "

Has medicine any better approach? We think so. The Research Council on Problems of Alcohol, an associated society of the American Association for the Advancement of Science, has for some time had this problem under close scientific scrutiny. Its publication, the *Quarterly Journal on Problems of Alcohol*, is now in the hands of many practitioners of medicine, as well as in those of the public, spreading accurate, scientific information as to the known facts concerning alcoholism as a disease. The Council's address is 111 Pondfield Road West, Bronxville, New York.

Dr Boudreau at the conclusion of his article says "Our profession should accept the challenge, seek by research for the complete medical solution and, above all, afford leadership in a social movement against excessive drinking. More drinking inevitably is followed by more addictions and other alcoholic disorders." At its annual meeting on November 25, 1941, the Research Council on Problems of Alcohol held group conferences under these heads:

- The problem of alcoholism and excessive drinking in industry

Research on the relation of alcohol to industrial efficiency—for personnel and medical directors

Problems of the family doctor, clergyman, and layman in dealing with alcoholism

Research on alcoholism and the alcoholic psychoses

Alcoholism as a public health problem

Methods of treatment for alcoholism
The problem of the acute alcoholic—in city hospitals, correctional institutions, courts, and police departments
Alcoholism as a problem in social work

The problem of alcoholism as related to the legal, trade, and social controls of the sale of alcoholic beverages

This seems to be a direct answer to Dr Boudreau's challenge to the profession. It is far from a solution, but there is no ending that does not have a beginning. The problem cuts squarely across the field of mental hygiene, leaving an unlovely trail of human wreckage to encumber the machinery of industrial production and a continuing problem to engage the attention of the committees on public health of the various county and state medical societies.

The laymen have not been inactive respecting this problem. *The Mind That Found Itself* by Clifford Beers paved the way for a change in professional and popular views about mental cases, which change was marked by the widespread substitution of the term "mental disease" for the term "insanity"—a positive thought replacing a negative one. The story of a rapidly growing lay movement is told in the volume *Alcoholics Anonymous*, the textbook of groups known by this name. The book has helped many men and women to recover from alcoholism by a spiritual approach—empirical, but useful. Today, there are ninety of these groups that have sprung up throughout the country as a result of the distribution of this book, which may be had from the Works Publishing Company, Box 658, Church Street Annex, New York City. Representatives of *Alcoholics Anonymous* are admitted to call on patients in a number of leading hospitals in several cities, one hospital in a suburban town sends a bus load of patients to the weekly meetings of the New York City group.

Most people, and some doctors, attempt to cure the alcoholic patient by "reading the riot act" to him, picturing

THE DIET OF YOUNG INFANTS

CHARLES HENDEE SMITH, M D , New York City

THIS contribution deals with the methods of feeding and the food requirements of the infant in his early months, especially in the neonatal period. The artificial feeding of infants throughout the first year has been discussed elsewhere.^{1,2}

The first question that confronts the physician in charge of a newborn infant is "breast or bottle?" There should be no question as to which is the best food for infants. All authoritative teachers and texts agree that breast feeding is the method of choice unless the mother's health, physical or mental, is below normal, or unless there has been more than one failure in nursing previous babies. It is not necessary to enumerate all the diseases that contraindicate nursing, since any condition that impairs the health of the mother is enough to do so. Breast feeding is good for the mothers, too. Nursing stimulates uterine contractions, promotes involution, and gives the mother a psychologic satisfaction and comfort surpassed by nothing else in life.*

It has been too well known to need corroboration that breast-fed babies not only have a better chance of survival than bottle babies but also have less acute respiratory illness, have fewer digestive upsets, and gain more surely in the early months. Statistical proof of this has been furnished by Faber and Sutton,³ Grulee,⁴ *et al*, Griffiths,⁵ and others.^{6,7,20}

But what is the common practice today in this matter? It is an unfortunate fact that instead of being urged and encouraged to nurse her infant the slightest hint from the mother that she wants the baby to be bottle-fed is

taken as ground for weaning. Every possible obstacle is placed in the way of the mother who wishes to nurse her baby by many physicians and nurses. The result is that few babies born into the private-patient class are now breast-fed. It is easy to prove this by visiting the nursery of any private obstetric hospital and asking the nurse in charge the general attitude toward breastfeeding (footnote,* p 2396).

The decline of breast feeding has been deplored by many writers.^{8,9} This is attributed by some to the improvement in artificial food methods which makes it much less dangerous to wean a baby than in former times.¹⁰ Others blame indifference and mismanagement. On the other hand, several studies have shown that in some parts of the world and in certain classes of society there is no real falling off in the percentage of breast-fed babies.^{10,11}

Breast feeding is not a lost art, but its management is a real art. The results of a number of studies show that the great majority of mothers (90 to 95 per cent) can nurse their babies when properly encouraged and supervised. The pioneer work of Sedgwick in this field is a perpetual example.^{12,13,14} Breast feeding is the routine method in the nurseries at Bellevue Hospital. No baby is given a bottle until nursing has been given a fair trial. Sugar solution is the only prelacteal feeding and babies take very little of it—only a few ounces a day in most cases. Only 10 per cent of the babies receive any artificial food during the ten days in the hospital. Artificial feeding is used only when the mother is tubercu-

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, New York, May 1, 1941.

From the Department of Pediatrics, New York University, and the Children's Medical and Obstetrical Services, Bellevue Hospital.

*A recent article by a mother (Brown, Elizabeth, *Ladies Home Journal*, 23 (Jan., 1941) tells the story better than any words of mine.

'American women have been charged recently in fairly harsh terms with refusing to nurse their babies. And the implication is that they are vain, selfish, lazy, or to say the least, uninformed.

The last of these reasons—and only the last I think—is true. Women are uninformed about nursing. It isn't by any means so simple as the books say. It's a difficult, perplexing, sometimes dismaying experience. There is nothing natural about it, if you think of natural processes as occurring effortlessly. But for the mother who surmounts these obstacles, nursing her baby is a rich, glowing experience, bringing with it an incomparable sense of peace and completion.

Medical men, psychologists, and almost every mother who has nursed her baby agree on the wisdom of nursing.

The baby's greatly increased chances of staying well during the first year and of developing into a happy, confident child are matched by the mother's own deep sense of fulfillment. But too many mothers are uninformed on the first point and so never discover the second. I am convinced that if women were better prepared for the problems of nursing and realized the immense satisfactions to be gained from it, a much larger number would insist on breast feeding their babies.

The writer then describes how the first baby was weaned before she left the hospital because she wasn't getting enough milk. She says: "The whole experience left me feeling dismayed and somehow inadequate. She was determined to nurse the second baby and did so successfully in spite of attempts to discourage her."

The outcome was an unqualified success. The baby not only grew well but enjoyed his feedings enormously. With this intimate contact I came to know him more quickly as an individual. The price of being at home at fixed times every day and of leading a more regular and somewhat less active life than usual was indeed no price at all but a rich and profitable interlude physically, emotionally, and intellectually.

Correspondence

DR ARCHIBALD McNEIL AND THE GONORRHEAL COMPLEMENT FIXATION TEST

To the Editor

In the passing of Dr Archibald McNeil on October 13, America has lost a distinguished serologist. It may be fitting to pause and pay tribute to a colleague who so brilliantly and modestly contributed to our knowledge of one of the diseases which still remains a public health problem in our midst.

Coming from New Haven where he had founded the first bacteriologic laboratory of the Department of Health, he became associated with the New York City Department of Health and worked there for many years.

In 1912 Dr McNeil, in collaboration with Hans G Schwarz, drew attention to the value of a blood test, the complement fixation test, for the diagnosis of gonorrhea. From that time until his death he remained an exponent of the value of this test. Dr Archibald McNeil, of America, and Orpwood Price, of London, have proclaimed its value for twenty years or more.

Dr McNeil always coupled his laboratory research with careful bedside observations on the part of the clinician in charge and checked his findings with other serologists with whom he had worked intimately. Thus, his work on the gonococcus was associated with William H Park, Anna W Williams, M A Wilson, Annis Thomson, Agnes Hamann of the Research Laboratory, Department of Health, Hirschland in Pennsylvania, and other serologists. For many years his work was carried on clinically in the female gonorrheal wards of the Kingston Avenue Hospital on the service of Dr E D Barringer.

A number of private grants of money were made by public spirited citizens who were interested in the effort of standardizing this blood test for gonorrhea. Thus, Mrs Charles Day, of Philadelphia, Honorable Lucius N Littauer, of New York City, and others made this research possible. The results of this work were widely reported before the American Medical Association and other scientific societies and published.

With the onset of the Antivenereal Disease Drive and the appropriation of large federal funds to finance research on the gonococcus, these private grants stopped in favor of this governmental help. It is a matter of immeasurable regret that funds appropriated by the generous well-wishing taxpayers for research in venereal disease should not have been protected from political spoil.

In the allocation of these federal funds Dr McNeil was unable to secure any grants to finish up the work he had in hand. However, it is an ironic fact that in spite of the lack of this appropriate financial help he was able to continue singlehanded in his own private laboratory. His technic today, with the modification of Thomson and Hamann, is the most widely accepted of any here in America.

It has been said by many clinicians in discussing the complement fixation test for gonorrhea that it is uncertain "unless done by Dr McNeil himself." Dr McNeil realized the

importance of this criticism but believed that with further intensive study and standardization of details necessary in its performance the test could easily be made available to the skilled laboratory worker. He always stated that the test called for a skillful and well-trained technician but that there was nothing inherent in it that need be considered a variable. I quote his own words "With the antigen as now prepared it should be possible for any technician who can properly standardize complement and perform satisfactory Wassermann tests to obtain accurate and reliable results that will satisfy clinicians with the complement fixation test for gonorrhea infection."

His last public pronouncement was at the Post-Graduate Fortnight of The New York Academy of Medicine in October, 1940.

At that time, in a joint exhibit with Barringer and the Staff of the Gonorrheal Service of the Kingston Avenue Hospital, a statement in regard to the suggested standardization of tests for the diagnosis and tests of proof of cure of gonorrhea in the female was made.

What will be the future of the complement fixation test? Will it hold a recognized standard place in the departments of health that the Wassermann test does for syphilis? Only time and further clinical experience can answer that.

Gonorrhea is at the crossroads today with regard to its future history. If the sulfonamides with their apparent brilliant cure are really what they seem and if one can be sure that a negative spread and culture of available discharges prove this cure, then there would seem to be little need for further tests and gonorrhea may quickly be rated an unimportant infection.

To those who have studied gonorrhea over a period of years and have realized its many manifestations as a general systemic disease and, especially in the female, have noted its carrier quality—in that latent foci may harbor viable gonococci—it does not seem likely that the careful conscientious physician will be willing to discharge his patient on only a negative spread and culture of available local discharges. An intimate knowledge of how sulfonamides affect the morphology of the gonococcus and of the difficulty of detecting it accurately after their use would add to the hesitancy on the part of the clinician in being willing to forego a reliable serologic test.

Also there are other needs for a gonococcal complement fixation test which should not be overlooked, such as its simultaneous use with the Wassermann test in premarital blood examinations and in the examination of employees, especially nurses and attendants who care for little children.

If and when all these considerations fall into their proper perspective in the problem of gonorrhea as a whole and when the need for a serologic test is proved, it is to be hoped that the McNeil-Thomson-Hamann technic will receive the full recognition it so richly deserves.

EMILY DUNNING BARRINGER

November 28, 1941

BREAST FEEDING - NEW BORN

BOTH BREASTS 8 MIN EACH EVERY 4 HRS 6 FEEDINGS

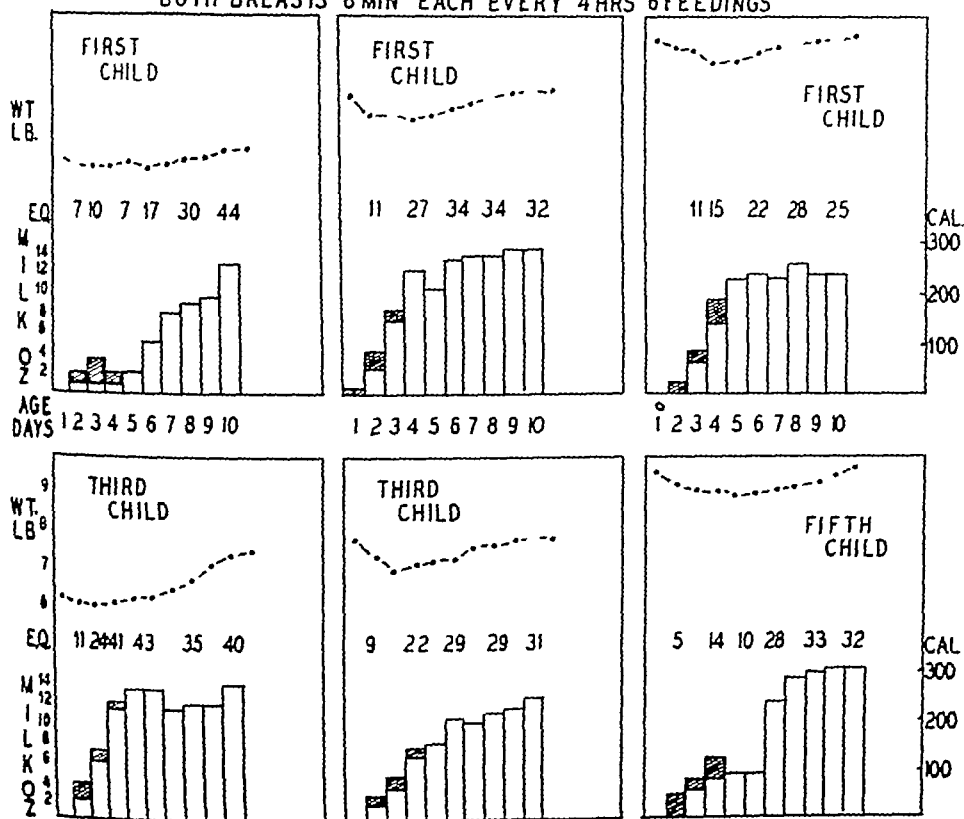


Fig 1 Shows amount of milk obtained by six babies in first ten days of life. Shaded blocks represent calories from sugar solution. Note the low energy quotient throughout and satisfactory weight curve. Numbers indicating weight were omitted from upper blocks by an error. They should be as in the lower blocks. The first baby weighed $6\frac{1}{4}$ lb, the second $7\frac{1}{4}$ lb, the third, $9\frac{1}{4}$ lb at birth.

the Bellevue class and from private practice make it fair to conclude that 90 per cent of the mothers can nurse their babies for two months or more if they are properly encouraged and supervised.

Most of the trouble arising during breast feeding is due to neglect or ignorance of the simple principles upon which its success depends. It is worth while to review the fundamental facts that the physician should bear in mind and about which it is his duty to instruct the mother. This story is an old one but, like many, it needs to be repeated from time to time lest it be forgotten.

Early weaning is ordered by some obstetricians because the milk is slow in coming or the supply seems to them to be inadequate. It is well known that little or no milk is obtained in the first days of life, that the milk only "comes in" after several days—usually by the

sixth day—and that it may take two weeks or more to establish a good supply.

The amount of breast milk obtained by hospital ward babies is illustrated in Fig 1. These are 6 typical cases selected at random from a large number of patients weighed before and after each feeding and representing the behavior of the breast-fed babies born in Bellevue. The birth weight is reached or approximated by the tenth day in most instances. It is obvious that all of them gained as soon as they got about 30 calories per pound about the end of the first week. Few of our babies obtain more than 40 per pound by the tenth day. By the end of the second week, however, infants need 45 calories per pound.

Even though the milk supply is scanty at first, it is a common experience to have it increase rapidly as soon as the mother gets home from the hospital. On the other hand, if she

TABLE 1—BREAST FEEDING—DURATION IN PRIVATE PATIENTS

First Seen	Not Nursed	1-21 Days	3-8 Weeks	2-3 Months	Over 3 Months	Total
Before weaning	2	5	21	42	157	227
At weaning		1	7	2	18	28
After weaning	114	61	56	30	30	300
						555

Note the greater number of breast-fed babies when seen before weaning These are not selected cases but were taken in alphabetical order from the files of private patients

lous, acutely ill, psychotic, or otherwise unfit to nurse her baby or when a fair trial shows that she cannot produce milk When the babies discharged from the Obstetrical Service come to the Outpatient Department of the Children's Medical Service, 85 per cent of them are still breast-fed, although several weeks may elapse between the hospital discharge and the first visit to the clinic

At Baby Health Stations on the east side of New York City the babies come from several hospitals A study is under way to determine the character of feeding ordered On coming to the stations 70 per cent of the babies born in Bellevue are breast-fed, but from one other nearby hospital only 10 per cent are still nursing From other hospitals 20 to 40 per cent are breast-fed, but none of them approaches the rate of breast feeding of the Bellevue babies

Table I shows a study of the records of 555 infants, taken in alphabetical order from my files, and should represent a fair cross section of private practice They are grouped according to the time at which they first came under my care, before, at, or after weaning Some of the nursed babies obtained all their food from the breast until near the time of weaning, others had one or more bottles for part of the period But no baby was kept on food from the breast unless he obtained more than half his requirements and was gaining well These babies divide themselves into five groups by the length of time they were breast-fed

The first group contains the babies never nursed Only two mothers seen on the first day absolutely refused to try breast feeding—

* A few examples are typical A young married physician was delivered in a hospital recently She wanted to nurse her baby but was ridiculed by the nursing staff who told her that breast feeding was out of date that no one would nurse babies in a few years and that she was the only patient in the hospital who was nursing her infant She insisted, however, and nursed the baby successfully In a private hospital at a recent visit not 1 baby out of 30 was breast-fed, and in another, only 1 of 35 In one of the best private hospitals in New York City, 2 patients who wanted to nurse their infants reported that they were talked out of it by the nursing staff A prominent obstetrician told a patient of mine that it is easy enough to feed a baby from the bottle, and there is no use bothering with nursing any more. These examples illustrate the general attitude toward breast feeding and could be multiplied indefinitely

one for economic reasons, the other from pure stubbornness On the other hand, 114 babies whom I saw after weaning had never been put on breast feeding The reasons were adequate in some instances, but in others they certainly were not

The second group was nursed from a few days to two to three weeks This group obviously consists of babies nursed during the time the mother was in bed or just getting up Only 5 of these were babies under my observation, 1 was seen at the time of weaning, and 61 had been weaned before I saw them Some of them were weaned because the milk was obviously inadequate, but others who had been weaned before I saw them had had as much milk as could be expected at that period By the figures it appears that over twelve times as many mothers were discouraged under the obstetricians, as compared with the group encouraged to persist in nursing

In the third group the babies were nursed three to eight weeks—a longer trial and one that gave the baby time to be educated to artificial food This must be considered as partially successful nursing Sixty-three had been weaned before they came under observation as compared to 21 in the group seen before weaning

The group nursed two to three months shows a reversal of the figures, 42 were under my care, while 32 had been weaned before they were seen In most cases these babies were successfully nursed until the mother became more active and more tired This length of nursing is really well worth while

The babies nursed over three months were the most successfully breast-fed Of these 157 were under my care against 57 seen at or after weaning

If one counts all babies breast-fed over two months as successfully nursed, it is noteworthy that 87 per cent of the babies seen before weaning fall into this class On the other hand, only 29 per cent of those seen at or after weaning were nursed as long as two months It may be suggested that the babies who were weaned early were more apt to be turned over to the pediatrician than those breast-fed Careful studies of the histories show that this factor was not important These facts from

stetric hospitals the whole management of the infant is left to the nurse by the obstetrician who does not care to bother about the "by-product of the mother's labor." More and more, then, in recent years the baby is turned over to the pediatrician already weaned and, too often, on a feeding that has started an upset. But let the pediatrician beware! No word of criticism may be uttered as to the handling that has caused the trouble. Let him get out of it as best he may. It often exhausts all his resources, scientific and strategic.

The infant lucky enough to be breast-fed requires observation and management as careful as that given to his brother on the bottle. There is no automatic regulator on the milk supply. In the early days little milk is secreted, then the breasts begin to yield abundantly and may overdo the matter, so that an infant of 3 or 4 weeks may obtain almost as much as one of 6 or 7 months. A small baby may find as abundant a supply as a large one. The physician who appreciates this fact will avoid the effects of overfeeding by carefully regulating the time at the breast. He must be equally alert to detect a failing supply. Fig 2 shows the amount of milk obtained by a baby each day in the nursing period. Note the rapid increase of milk up to the point where 60 calories per pound were obtained. It would have been easy to overfeed this baby. It was necessary to cut the number of nursings from five down to four a day for several weeks, then five were given again as the supply began to fail. Note that the baby gained on rather less than 45 calories per pound for most of the nursing period. Heubner¹⁶ published curves showing similar facts nearly forty years ago.

It is not difficult to weigh the baby before and after feeding for a few days and to determine the calories he gets per pound per day. When he is getting too much regularly, the amount can be reduced by increasing the interval, omitting one feeding, shortening the time at breast, using one breast instead of both, or giving water before nursing to take the edge off the baby's appetite. Less frequent and less prolonged nursing not only gives the infant a smaller individual meal but automatically cuts down the supply by diminishing the stimulation of the breasts. It is then necessary to watch the supply or it may be cut too much, but it can be increased by longer nursings and by using both breasts at each feeding again. I have never found a mother willing or able to increase the milk by manual stripping.

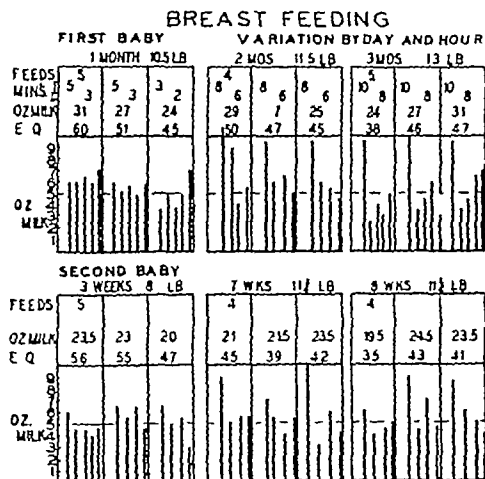


FIG 3 Shows the daily and hourly variation of breast feedings in 2 babies of the same mother. Each block represents three consecutive days. Note the great difference in the amount obtained at different feedings. Some were much larger than is usually expected. It was impossible to estimate the size of the feeding from the baby's behavior.

The rate of secretion of breast milk at a feeding must be remembered, for only by a knowledge of this rate can we regulate the time at a feeding. The baby gets about 75 per cent of the milk obtained at a nursing in the first two to four minutes.¹⁶ A nursing of six or eight minutes is usually adequate, though the infant may be allowed to suck for ten minutes to strip the breast and thus stimulate the milk secretion if necessary. Further nursing merely macerates the nipple and predisposes it to cracking, makes the mother nervous, and fills the infant full of swallowed air. When the milk supply is overabundant, the time may be cut to three to five minutes or even less, especially in the morning. One of my patients got all he needed in forty seconds!

The amount of milk obtained at a nursing varies greatly. As a rule, in the morning more milk is secreted, while the supply drops off toward night. This daily variation seems to do no harm, for a baby will often go as long after a small feeding as after a large one. The total daily amount is the important thing. Surprising extremes are often seen. Fig 3 shows the daily variation in 2 breast-fed infants of the same mother. It seemed to make little difference to the babies whether they got 4 or 10 ounces at a meal. On one morning one of them, at the age of 3 months and weighing 12 pounds, took 12 ounces without any sign of discomfort.

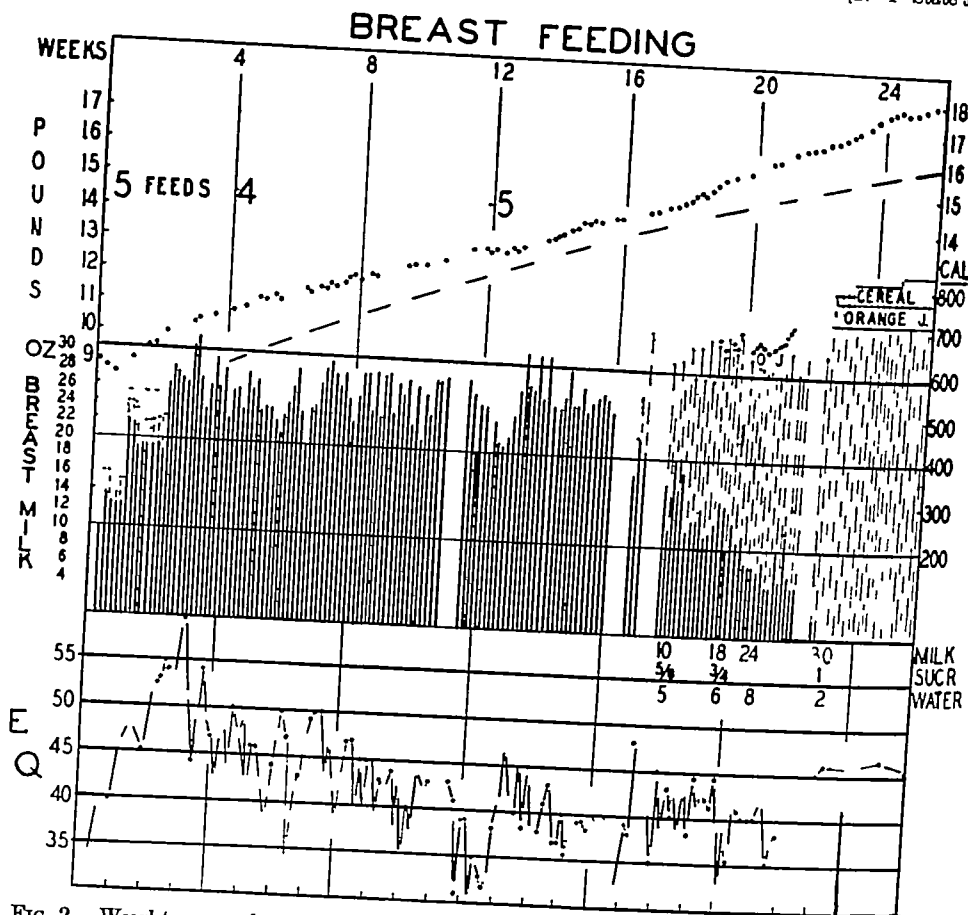


FIG 2 Weight curve, dotted line, average breast-fed baby's weight, broken line. Vertical solid lines show amount of breast milk obtained each day during nursing period. Broken lines show calories in artificial food. Curve at bottom of chart shows fluctuation of calories per pound day by day. Note low calories early, rapid increase to 60 per pound at three weeks, then less when only four feedings were given. Note good gain on low calories most of time.

does too much and gets too tired in the third or fourth week, the milk supply may fail. It is impossible to determine during the hospital stay what will happen in the weeks during which the mother is getting back to normal life. Therefore, no obstetrician is justified in predicting whether a normal healthy woman can nurse her baby until she has been given a fair trial.* Naturally he is (or should be) the best judge of her health and strength, and it is quite within his province to decide whether

she should be allowed to try breast feeding. Too often he discourages her, or lends the weight of his influence against nursing, when a little explanation of its advantages would convince a mother who is not aware of all the facts. Surely this is a problem in the decision of which the pediatrician is entitled to share.

The nurse who interferes in the matter is stepping outside her province in a most unprofessional way. Unfortunately, in many ob-

*A recent example. A mother had successfully nursed her first child for three months. He gained well and was weaned only because the mother was anemic and nervous after a severe first labor. Her second baby was ordered off the breast by the obstetrician on the eleventh day because she was only giving half the needed milk.

The chart showed that the baby had obtained 7 9 8 1/2 10 and 13 ounces of milk on the sixth to tenth days as

much as the average baby gets at this time! The mother was in fine condition after this easy labor and was willing to try nursing further especially since she had to travel to the West in a few weeks. It is probable that the breast supply would have been better and better in the next few days. To wean a baby who obtained 13 ounces of milk on the tenth day showed a profound ignorance of the whole psychology of breast feeding. (Incidentally the bottle feeding ordered provided 55 calories per pound, and the baby gained 11 ounces from the eleventh to the fifteenth day—not a desirable rate.)

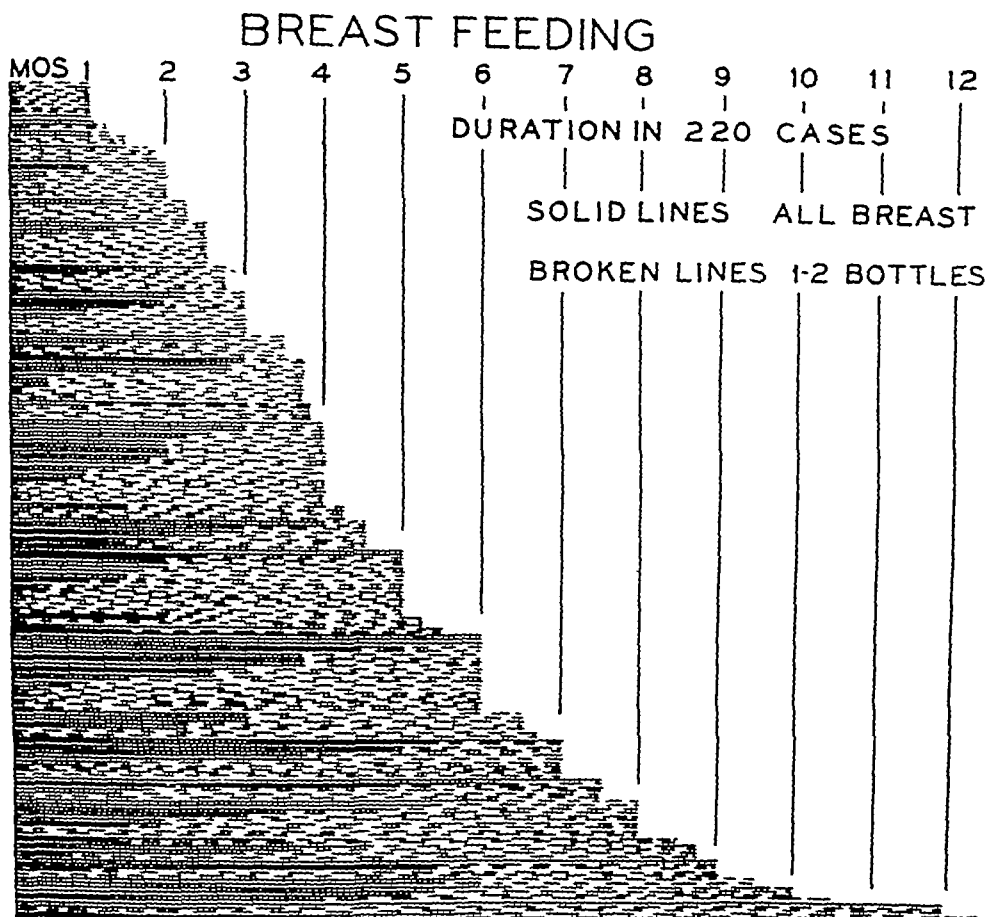


FIG 4. Each horizontal line indicates the duration of breast feeding in an individual case. When on mixed feeding (broken lines) only one or occasionally two bottles were given. All babies obtained more than half their requirements from the breast. The average duration of nursing is about four and one-half months.

not make milk on a reasonably balanced diet, she will not do so on overeating. An extra glass of milk with one meal is desirable, but the mother who takes a quart or more above her normal diet either gets too fat or has indigestion. Many mothers need an iron tonic for the anemia following labor and the not inconsiderable drain of iron in the breast milk.

Breast feeding may be considered successful if it can be continued long enough to educate the baby to artificial feeding when that becomes inevitable. The length of the period on the breast is less essential than the result. It is not necessary for it to continue for many months but, if the baby can be carried through the neonatal period and for several weeks thereafter, he is better fit to cope with artificial food. Even if weaning is necessary in

the second or third month, breast feeding is worth while, provided the baby gets enough milk to take him past the dangers of early weaning.

Weaning should be gradual rather than sudden, substituting one bottle at a time for a breast feeding. The baby who has had water from a bottle from birth will take artificial food easily. It may be extremely difficult to make him take the bottle if he has never encountered one before. For this reason all babies ought to have water or sugar solution from the bottle while they are breast-fed. One bottle of formula in the middle of the night to give the mother more sleep may be given in the early weeks if there is a nurse on duty. An occasional bottle during the day gives the mother a little freedom and a sense

Many mothers and nurses are uncertain as to whether one or both breasts should be given at a nursing. The answer is simple. If the supply is abundant one side is enough, if not, both may be given. It is best to start on a different side at each feeding, to let the baby nurse longer on the first breast, and to fill him up with "dessert" from the second breast. Yet, in one New York hospital the routine allows only one side for twenty minutes and orders a bottle if that is not enough!

The interval between feeding depends on the size of the baby. A small or premature infant may be fed every two hours, one of 5 to 7 pounds may need three-hour feedings, but babies of 8 pounds or more will usually go for four hours. A good rule is to put a baby on four-hour feedings as soon as he is able to take enough at a feeding to last four hours. But to make a small infant go so long is difficult and to insist that all infants of all sizes must go four hours between feedings is unkind, unwise, and impracticable. Larger babies after the first few months may go five hours without undue hunger.

The number and hours of feedings depends on the interval. Small babies on three-hour intervals need seven feedings, larger ones on four hours only require five or six. Some thrive on four feedings at five-hour intervals. Small premature infants must be fed as often as every two hours. As soon as the baby will go all night he should be allowed to do so, but it is unwise to try to make him skip the 2:00-A.M. feeding if he awakens and is hungry for it. It is easier for all concerned to feed him than to have the whole family kept awake in the effort to break him of the night feeding. The insistence of the nurse in the hospital that the baby must not have this feeding makes much trouble when he gets home and insists on having it. Many mothers struggle too hard to feed the infant exactly on the hour, night and day. In general, it is best to feed at regular hours, by day, but let the baby decide when the night feedings are due. This plan gives the whole family more sleep.

There is no single guide to the management of the feeding of any infant. The total behavior must be studied in every case. All of the signs and symptoms involved are objective, for the baby cannot offer any subjective help. So the nurse or mother who says the baby is "hungry" is merely offering her interpretation of the baby's behavior and is more likely to be wrong than right. It is one of the pediatrician's most difficult problems to convince the loving mother of a baby who cries a

little at the end of feeding that her darling is not in imminent danger of death by starvation, even when he has gained a good rate and shows all the other signs of adequate feeding.

In judging the success of any plan of feeding the following points must be noted: weekly gain in weight, vomiting, stools (number, color, consistency), eagerness for food, crying before or after feeding, restlessness, sleep, the baby's aspect, color, general nutrition, tissue turgor, and the skin. None of these points should be neglected, nor does any one of them serve as the sole index of the need of more or less food.

The normal well-fed baby gains 4 to 6 ounces a week, vomits little (though he may regurgitate with air eructations). His stools are not too many (one to four), or too large, are yellow or slightly green, and are soft and smooth. A little variation in consistency, a few curds, or a small amount of mucus means little. He takes food readily, cries lustily before mealtime for a few minutes and, perhaps, briefly when feeding is over. He is quiet between meals and sleeps most of the day and night. He is placid, has a good color, and tends to be plump, with firm tissues and a smooth clear skin.

The overfed child gains too fast (8 ounces or more a week) and soon becomes too fat. He vomits after meals from distention or, later, from indigestion. His stools are too many, too large, too loose, and more green than yellow. He cries little before meals but may do so from overdistention after feedings or from indigestion later. He often sleeps past mealtime. He may develop eczema.

The underfed child gains too little (less than 4 ounces a week), cries too long before meals, rarely vomits, is constipated, and sleeps too little. His tissues become lax and, if underfed for long, he develops malnutrition or even marasmus.

How long shall a baby nurse? Again the answer is simple—as long as the baby does well and the mother does well. The mother should nurse only so long as her physical and mental health are good and she is showing no signs of strain. In general, nursing may be profitably continued so long as the baby gets half his requirements from the mother. When the breast milk falls below this amount the end is in sight.

The mother's hygiene often needs regulation. She should have enough rest, some exercise, and an adequate diet. But she should not be allowed to stuff herself with the idea that she will produce more milk. If she can-

of gratitude to the physician which makes her willing to continue to nurse. It does not necessarily mean the end of breast feeding.

Fig 4 shows the duration of nursing in 220 patients under my observation (see also Table 1). The solid lines indicate all breast feeding, the broken ones represent periods when one or occasionally two bottles were given. In all instances the babies obtained most of their food from the breast. The long continuation of breast feeding on this plan refutes the idea that "one bottle means the end of nursing." In my experience it helps prolong breast feeding.

When mixed feeding is necessary because the breasts will not supply enough milk, confusion sometimes arises as to whether it is better to give a supplementary bottle for one feeding or to give a complementary one after the breast. The single full bottle feeding is useful when the baby gets enough from the mother at all feedings, in order to free her for social, athletic, or other activities or to rest her once a day (when she is tired, usually at the late afternoon feeding). The complementary bottle after the breast should be used only when the baby gets too little breast milk at some feeding, although enough in the day to make it worth while to prolong nursing. It has been shown that giving complementary feedings to all babies cuts down the percentage of breast feeding.¹⁸ In using this addition to the breast, the infant should be weighed before and after nursing and then be given only so much artificial food as is necessary to make up an adequate meal. It is often necessary to do this only in the latter part of the day. Babies usually get enough in the first two nursings but may need a complementary bottle later. For instance, if a baby needs 5 ounces of milk at a feeding but gets only 1 or 2 at some, he is entitled to the difference from a bottle. One must remember the daily fluctuation in breast milk, however, and only add the bottle when the day's total is failing.

Babies are deprived of the opportunity to nurse for various reasons. The mother may be afraid of being tied down—of being kept from social engagements. She may fear the effect on her husband who wants her free for his companionship. The dread of losing their figures influences some mothers. The economic status of the family may force the mother to go to work as soon as possible. In the majority of cases she can earn less than it costs to hire, house, and feed a competent nurse! Inverted or small nipples may make nursing impossible, but with proper attention

before the baby is born most nipples can be made to function. The doctor sometimes thinks "the mother's milk might not agree" (without ever giving it a trial). In one such instance the mother's breast "caked" and there was great difficulty in drying up the milk. The artificial food disagreed and there was trouble for several months. One mother said she would not nurse because it was a "nasty animal performance." She had so much milk that she had to nurse her baby for six months—a just retribution! Of course, a mother who has honestly tried more than once to nurse previous babies without success should not be pushed further.

Weaning of babies who are started on the breast is prompted by many of the above reasons. Much more common is the following sequence. The baby nurses freely from an abundant supply, gains too fast, begins to vomit, to have loose stools, and to cry from colic. He is weaned because the "milk disagrees" and, since he is weaned during an upset, the artificial food also disagrees. All he needed was to have less breast milk. This train of events starts many difficult feeding cases. Cracked nipples occasionally necessitate weaning, but with short nursing periods a temporary use of a shield, and local treatment, weaning can usually be averted.

Failure of the supply, of course, ends the nursing eventually. This takes place in several ways. In the first group are the mothers who just cannot secrete milk. The baby gets only a few ounces a day, and nursing has to be abandoned in the first two to three weeks. The next group can give some milk for four to eight weeks but the supply is never adequate. This amount of nursing is worth while, for it enables the baby to acquire a gradual education to cow's milk. A third group nurses successfully for two or three months when the supply fails, often because the mother goes back to her normal life and in doing too much becomes overtired. The really good nurses are the mothers who have all the milk a baby needs for four to ten months and who even then find it difficult to stop nursing.

Artificial Feeding

Giving artificial food in the first days of life is a standard practice in many hospitals. The attempt to prevent the initial weight loss by this means is not necessary and may be harmful. The loss of half a pound or even more does the baby no harm. Part of the loss represents meconium and urine. If the baby were weighed after six to twelve hours instead

of immediately after delivery, the initial weight loss would be much less. If he is given a few ounces of sugar solution in the first few days, he gets along well enough. At Bellevue all babies are offered 5 per cent sugar solution every four hours in the first three days. It is surprising how little they take, often only 2 to 3 ounces a day, occasionally 7 or 8. They do not have the so-called dehydration fever even with this small amount. Citrate-lactose solutions, given by some, may cause water retention and prevent weight loss, but this is mere subclinical edema. Real edema has been produced by these solutions.

Artificial feeding in the prelacteal period, especially if too generous, may cause indigestion and serious trouble. The students of allergy believe that giving cow's milk in these early days may be responsible for sensitivity to that food later in life. But the worst feature of giving bottles before the milk "comes in" is the tendency to continue them after there is plenty of milk. Some babies have bottles that are adequate for complete feeding forced upon them after they have had all they need from the breast!

We have seen that the average, normal breast-fed infant gets only 10 to 30 calories per pound in his first week and 35 to 45 in the second. By the beginning of the third week he needs 45 calories per pound and will gain on this amount. The bottle-fed babies do perfectly well on equivalent calories, and the weight curve is identical with that of the baby on the breast. There may be a loss in the first few days, but the weight curves swing up when 30 to 35 calories per pound are taken, and there usually is a good gain in the second week on less than 45 calories per pound. These statements are based on experience in the nurseries of the Sloan Hospital for Women, the Bellevue Hospital Obstetrical Service, and in many years of private practice. Faber¹⁷ offered artificial food after the breast and found that babies *would take* 45 calories per pound by the fifth day and 52 per pound by the fourteenth day. Since babies gain on the lower amounts given above, his method must be questioned.

There is another aspect to this matter besides the mere caloric intake. The newborn baby who must be artificially fed from birth needs education to accustom him to an unnatural food. A weak formula gradually strengthened does this better than a strong one that may disagree with him. The objects to be held in mind in artificial feeding should be first, to train the baby's digestion to take

cow's milk, second, to avoid any upset at any cost, and, only last, to make the baby gain weight at a satisfactory rate.

The plan introduced at the Sloan Hospital for Women over forty years ago accomplishes these ends. It has been used by many obstetricians and pediatricians on thousands upon thousands of babies. I have tried many others but have not found a better plan. It has been used in Bellevue Hospital on the Children's Medical Service for twenty-five years and on the Obstetrical Service for over ten years. This plan gives the baby the same caloric intake in the first weeks as that obtained in normal breast feeding.

In the last few years, however, much larger quantities of food are recommended for the newborn infant. Babies are started off on formulas giving 50 to 60 calories per pound in the second day. "Standard" formulas are used in many hospitals by obstetricians who do not make the mental effort to study what they contain. The matter is too often turned over to the nurses. These standard formulas have been widely publicized in free magazines of commercial firms, by evaporated milk companies, and by the advertisements of certain carbohydrates.

The following are the standard formulas commonly used

	Ounces	Calories
Evaporated milk	7	301
Water	14	
Sugar	1	120
	21	421
or		
	Ounces	Calories
Milk	14	280
Water	7	
Sugar	1	120
	21	400

Seven feedings of 13 ounces or six feedings of 3½ ounces

If a 7- to 8-pound baby takes all of these feedings he obtains 50 to 60 calories per pound two or three times the amount he needs in the first week.

Many infants will not take all of the large amount of food offered them, and this saves them from digestive difficulty.* Others will

* An experience in the newborn nursery of a large private hospital is illuminating. While seeing a private patient there, one of the nurses who was in charge of another baby said, "Doctor, why is it that none of these babies will take all their bottles?" At that moment five or six other nurses were all giving bottles to their charges and several of them echoed the first nurse's statement.

(Continued on next page)

TABLE 2—ARTIFICIAL FEEDING FOR NEWBORN

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Milk, ounces		5		6		7		8		9		10		11
Sugar, ounces		$\frac{1}{4}$		$\frac{1}{2}$		$\frac{1}{2}$		$\frac{3}{4}$		$\frac{1}{2}$		$\frac{3}{4}$		$\frac{1}{2}$
Water, ounces		16		15		14		13		12		11		10
Total														
21 ounces														
Seven feedings of 3 ounces or six feedings of $3\frac{1}{2}$ ounces are offered. Some of this may not be taken.														
Calories per pound at 7 lb		23		25		28		34		38		40		44

take all they can get, especially if they are thirsty, and soon show the signs of overfeeding. These signs may not develop in the hospital or under the obstetrician's eye but often come on just as the pediatrician takes charge. He then gets credit for the upset, and the hospital staff goes blandly and blindly on its way, ignorant of the damage done by this early overfeeding.

In the study of Milk Station babies and of private patients, certain hospitals stand out for the too strong formulas given babies on discharge. The symptoms of overfeeding which have usually resulted are promptly relieved by cutting down the strength of the formula.

After the first two weeks, normal infants need about 45 calories per pound, and they will gain on this amount at a normal rate.* Placid and calm babies may gain on less. It is rarely necessary to give as much as 50 per pound, except to active babies. Proof of this statement also rests in the experience of many physicians through many years. Added proof will be offered elsewhere.

Here again, after the first weeks one sees enormous amounts of food prescribed for infants. The results are inevitable. Some infants develop an intractable anorexia, refuse part or all of the food offered, and may take so little that they stop gaining. The physician tries to increase the gain by giving more food or by adding fancy vitamins, usually with no success! The appetite promptly returns when the food offered is cut down—below 45 calories per pound at first—and then kept strictly to that amount. Other infants gain

rapidly on overfeeding and become extremely fat. Real obesity is undesirable at any age. Some babies develop acute digestive symptoms (vomiting, diarrhea, etc.), especially if they acquire an acute infection. Some overfed babies develop eczema, especially if there is an allergic family history. At first, this is a mild erythema of the cheeks, but it may spread rapidly to the extremities and trunk. Facial eczema humiliates the mother, but a severe universal eczema is one of the most distressing conditions seen in infancy. It carries no small threat to the baby's health or even to his life. The itching disturbs his sleep, lowers his resistance, and babies with eczema may succumb to acute infections of the skin or respiratory tract.

The proponents of high-calorie feeding often assume a calm superiority over those who recommend the older, more conservative plan. But many of us see patients whose symptoms disappear so promptly on reducing their food that it is impossible to doubt that they were caused by overfeeding. Numerous examples come to my notice each year, and more are collected by my hospital staff. A few of these have been reported.³

Overfeeding in the early months is often seen by giving solid foods too soon or in too great a quantity. While small amounts of solids (cereals, vegetables, egg, etc.) can be given early, there is no special advantage in giving them before the fourth or fifth month. Minute amounts may do no harm but really represent a mere gesture. Large amounts are not needed and, if they are forced, the baby either refuses his bottle or develops a distaste for all food. When solids are begun, the amount should be small—1 teaspoon gradually increased to 1 tablespoon. It is not necessary to give the 4 to 6 ounces often ordered at any time in the first year.

The fear of deficiency diseases and the present furor over vitamins makes some physicians feel that it is necessary to begin codliver oil and orange juice in the first days of life. It has been proved that breast-fed babies get enough ascorbic acid if the mother eats citrus fruits regularly. Orange juice or the pure vitamin may be started a week or so after

On consulting the order book it was found that the formulas all contained 50 to 65 calories per pound in the first two weeks. Wise babies to refuse part of the food offered! These formulas were prescribed by obstetricians or pediatricians who were supposed to be the best in the city. In another suburban hospital the head nurse in the nursery said that many babies were upset by the 'standard' formula and the food had to be reduced. Yet, the formula remained as a routine in spite of the protests of the pediatrician.

* A simple method of writing a formula containing 45 calories per pound is to give 35 calories of milk, $\frac{1}{4}$ ounce per pound, 10 calories of sugar, $\frac{1}{4}$ ounce per pound. Water is added to make a total of 3 ounces per pound in the early months and 2 ounces per pound in the later months.

weaning, but there is no great hurry Scurvy does not develop overnight

The normal baby who can get sun on his skin needs no codliver oil except in the dark winter months The premature or weak infant may aspirate oil and die of pneumonia Drisdol is the best form of vitamin D for small infants for this reason But rickets is not an acute danger in the early days of life, and one can wait a week or two before beginning any preventive

Summary

Breast milk is the normal, natural, and best food for the young infant Ninety per cent of the mothers of all classes can nurse their babies when properly managed and supervised

Artificial feeding should be based on the amount of food obtained from the breast Babies do perfectly well on low calories per pound in the early weeks Weak formulas, gradually made stronger, educate the young infant to artificial food which is more important than a rapid early gain Overfeeding in the early months, especially in the neonatal period, is a dangerous practice, for it may result in acute digestive upsets, eczema, or an intractable anorexia Some babies merely get too fat, but obesity is not desirable at any age

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Discussion

Dr George R. Murphy, Elmira, New York—As a former student of Dr Smith's, I am fairly familiar with his views on feeding and can usually agree with much that he has to say

My own experience in charge of the newborn services at each of the two hospitals in Elmira for the past twelve years has brought out certain definite points. Between the two hospitals there has been an annual total of births from around 381 in 1930 to 1,203 in 1940 Incidentally, all but 18 babies born in Elmira last year were delivered in the hospitals Of course, our jurisdiction is limited to those children born on service and our own private patients However, through our control over the routine nursery procedures, we are able to exert influence on the other private patients

For instance, it is routine for all babies to receive (a) plain water, (b) beta lactose-sodium citrate solution, or (c) 5 per cent glucose during the first twenty-four hours and to offer one of these *post cibum* until the breast milk is established If there are no contraindications to nursing, the baby is put on breast feeding at the end of twenty-four hours for two minutes on each side every four hours The time at the breast is increased each day two minutes up to a total of eight to ten minutes on each breast, both breasts at each feeding, at the end of four or five days By this time most mothers have established their milk supply The mothers are encouraged to help by manual expression of the breast during nursing and by pumping dry at the end of the nursing The only thing a baby gets in addition to the above during this period is 1 mg of synthetic vitamin K during the first six hours postpartum.

It must be admitted that one has to check on the nurses, especially the night force, fairly carefully or they will give a crying baby 50 per cent milk no matter what is causing the crying! Also it must be said of those babies not under our care, a fair number are "weaned" on the second or third day "because there is no milk." Thus, despite the fact that everyone knows breast milk "comes in" between the second and fifth days When the milk supply has been established, if it appears to be insufficient, we may complement the feeding For this we usually use Dryco, with instructions to make it up as needed

We make no attempt to put babies on breast feeding where the mother's condition does not warrant an added strain, where her past nursing history has been unfavorable, where there has been a long period between pregnancies, or where her age (near 40 years) suggests that such efforts will be unsuccessful—unless she insists Occasionally, one of these latter women will surprise us with a successful nursing We used to attempt to use a pump to "pull out" inverted nipples but have stopped We used to argue with the women who refused or did not want to nurse, but we have stopped this We are es-

pecially reluctant any more to ask doctors' wives to nurse because they "seem" unable

The only addition to the maternal diet which we suggest, besides adequate intake of food and of fluids, is some preparation with the B complex such as Chocolate Vitavose or Cal-C-Tose. We do find mothers drinking large quantities of fluid at the expense of the solids, hoping it will go from the mouth to the breast. Sometimes it does and dilutes her milk.

The problem of the cracked nipple is a common one. We still favor alcohol, or tincture of benzoin, Citron, or the B D Nipple Shield, which is really an air-conditioner. The towels bound around the breasts frequently cause extrusion of milk and, by friction, produce maceration of the nipples.

For the baby who is to be artificially fed, we are interested in the family history of allergy, if present. We usually start with 50 per cent milk and, if after twenty-four to forty-eight hours the baby handles it well, we start building up the formula toward the theoretic requirements. Generally speaking, we favor an irradiated evaporated milk, 1 part, water, 2 parts, and 1 ounce, carbohydrate—usually beta lactose. This is the easiest and one of the cheapest formulas to prepare which we have used. It has one disadvantage—one cannot skim off any of the fat. With a vomiting baby, we switch to ordinary cow's milk in a formula boiled three minutes. The evaporated milk also has the advantage of being less constipating than cow's milk.

We insist on babies being held nearly upright on feeding. We also like to have them empty their bottles within ten minutes, as they swallow less air. To aid in this respect, all our nipples are prepared according to the suggestion of an Englishman writing in the *Archives of Pediatrics* about two years ago.* A cross is cut in the top of a new nipple with a razor blade. The two lines of the cross are each $\frac{1}{8}$ inch long—to complete the cut through the nipple a Bard Parker No. 11 knife is used. This nipple allows for free flow of milk on the slightest suction by the baby, but the flow stops as soon as the baby stops sucking. This latter advantage precludes choking when the baby stops to take a deep breath or to look around the room. We have used fewer nipples since cutting them this way. The

*Wikin, M. *Arch Pediat* 56 No 2 (Feb.) 1939

old method of enlarging the holes wasted many nipples by making the holes too large.

Fortunately, we have had no experience with epidemic diarrhea of the newborn. This undoubtedly is mostly good luck, although we think aseptic technic may be responsible in part. No one is allowed in the nurseries except the nurses assigned there, the intern on obstetrics, the cleaning woman, and the attending physician. All persons entering the nursery must wear mask and gown. In one hospital the nurses scrub between each baby. In the other, they use the technic advocated by R. G. Flood in the *American Journal of Diseases of Children*, November, 1939. His technic requires the baby nurse to scrub thoroughly on entering the nursery. Then she soaks her hands for a slow count of 10 in 5 per cent Lugol's solution and decolorizes in saturated sodium theosulfate solution. She repeats the soaks between each baby. All doctors entering the nursery are required to put on sterile rubber gloves before touching any baby. At feeding time, mothers are required to wear masks and wash their hands before feeding the child. The breasts are also cleansed if the baby nurses. And no visitors are allowed with the mother while the baby is being fed—not even its father.

In conclusion, let me emphasize the importance of written or printed instructions to the mother. The attention paid to the small details is repaid over and over in the supervision of the baby. We try usually to have our mothers read Dr. Aldrich's book *Babies Are Human Beings* in order to dispell the fears produced by the folklore that has been built up by grandmothers and maiden aunts. One of the primary purposes of a pediatrician, as I see it, is to encourage mothers and to avoid creating an over-anxious atmosphere.

Dr. Charles Hendee Smith (*Concluding Remarks*)—May I point out that the formulas used by Dr. Murphy for the newborn are stronger than we consider necessary. I have seen many babies upset seriously by a "50 per cent milk mixture" in the first week. We never give this strength until the end of the second week. Moreover, the mixture with evaporated milk 1 part and water 2 parts is even stronger. These are the "standard formulas" to which I object so strongly.

PETER RABBIT, TOM SAWYER TO REPLACE JUSTICES

that is, if Mayor La Guardia of New York City, has his way. The Mayor said that he will be happy indeed when he hears that the justices in children's courts are out playing golf—that they have nothing to do. The occasion for this speech was the opening of a library shelf for delinquent children. The committee for the selec-

tion of suitable books for children in the courts chose, among others, *The Tale of Peter Rabbit*, *Treasure Island*, *Robinson Crusoe*, *Adventures of Tom Sawyer*, and *Esop's Fables*—all bound in gay colors. When a justice recommends a certain book for an errant child the library will see that he gets a copy.

THE MEDICAL AND SOCIAL CHALLENGE OF ALCOHOLISM

EUGENE N. BOUDREAU, M D, Syracuse, New York

WITH the question of prohibition settled by the voters of this country of ours, the public as a whole gives little further notice to the question of what happens in the mixture of alcohol and human living. But we physicians know that alcoholism still remains a problem because we all view it with such tragic frequency. We see this disastrous combination of alcohol and human living in all its hideous consequences—shattered prospects, blighted homes, mothers' despair, wives' shame, crumbled faith of children, and the individual's own misery.

Alcoholism, I believe, is a major health problem. It is a cancerous condition in our social fabric which must be resisted or controlled if we are fully to prepare our social structure for the inevitable impacts to come in this critical period of world history. Drinking alcohol leads in frequent instances to alcoholism. Let us then consider alcoholism with the object of analytically breaking down the problem into its various aspects.

But first, for clarity of thinking, I would ask you to consider alcoholism as a medical problem and, in defining it, I would have you disclaim and eliminate any ethical or moral qualifications and accept the fact that it is a malady—a sickness. For a working definition I would have you consider alcoholism as such continuous and immoderate drinking of alcohol as to produce bodily changes that undermine or destroy the physical health of the individual and promote a disorganization of his psychologic or personality integration, unity, and balance. Then, as a medical concept we can consider it as to incidence, etiology, pathology, clinical symptoms, its social implications and, finally, its treatment.

Incidence

It is somewhat difficult to know the actual incidence of alcoholism in the population as a whole, but we may gain some appreciation of its frequency by surveying the frequency of hospital admissions due to acute alcoholism, the psychoses due to alcohol, and deaths ascribed to it.

By a graph (Fig. 1) Jolliffe shows the rates of admissions at Bellevue Hospital from 1902 to 1935. It is evident from a study of this graph that there was a rise of admissions to a "high" in 1910. Following that through the

succeeding years to 1919, a steady decline is manifest. Remarkably, in 1919, 1920, and 1921, at the onset of the prohibition period the admission rate shows a fall to about 2,000 as compared to 11,000 at the high period of 1910. Then following these years the admission rate again increased in a rapid and steady rise to 1935.

In a second graph (Fig. 2) Jolliffe presents the relative rates of admission of male and female patients to Bellevue Hospital for the same period 1902 to 1935. Here again, we see the striking gradual fall in ratios from 1909 to 1919 and a low period at the onset of prohibition. It is to be noted that the ratios for female admissions maintain a relatively lower rate to male admissions and quite exactly parallels the fall and rise in male ratios before and after prohibition. It is common knowledge that drinking is less in the general population among women. It can be fairly assumed that, therefore, this is the chief reason for fewer admissions for acute alcoholism among women.

Fig. 3 shows graphically the admissions to the Civil State hospitals of New York State between 1909 and 1931. Here again, we see that these admissions dropped steadily from 1911, or thereabouts, to 1920 and 1921 and, thereafter, rose again to 1931. Also, female admissions were lower but kept a relative ratio with the male admissions during the falling and rising periods.

From Table 1 it is evident that alcoholic psychoses have a lesser incidence in rural than in urban populations. In the latter it is generally accepted that drinking is more common, therefore, this tabulation also shows that the greater the drinking among our population the greater the incidence of alcoholic maladies. The figures here also are notable in showing the decrease of the alcoholic psychoses during the years 1919, 1920, 1921, and 1922.

Table 2 likewise indicates the fall of first admissions for alcoholic psychoses during the years 1919, 1920, and 1921 especially, also a decline from 1911 through 1920, then a steady rise thereafter.

Table 3 indicates the common age incidence of alcoholism and shows that it is found in all walks of life or in the various social levels of society.

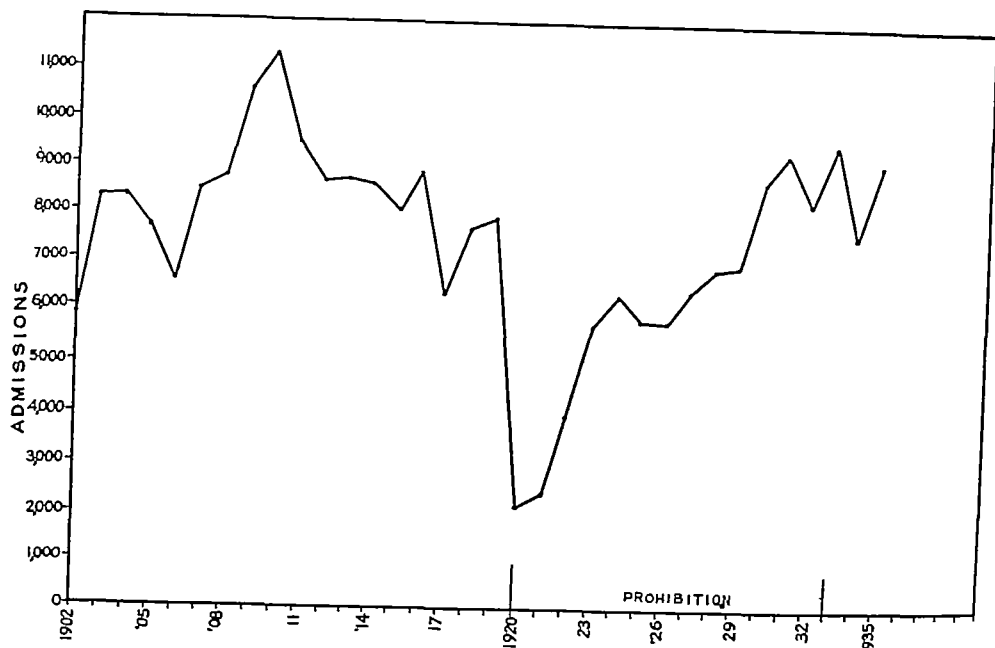


FIG 1 Total alcoholic admissions, 1902-1935 Norman Jolliffe Science 83 No 2152, 307 (March 27) 1936

Table 4 shows figures obtained from the United States Bureau of Census and reveals deaths from alcoholism during the years in which we have been interested. This shows a striking diminution of these deaths during the years when drinking was less general, especially through 1919 to 1922.

In 1938, quoting from the report of the Department of Mental Hygiene of New York State, of total admissions of 16,070 to Civil State hospitals, 2,072, or 12 per cent (of which 1714 were men and 358 women), were designated intemperate in the use of alcohol. In the same year there were 831 admitted with alcoholic psychoses, about 5 per cent of the total admissions.

It is strikingly proved, I believe, by these statistics that in periods where general drinking decreased the incidence of deaths from alcohol and hospital treatment for various grades of alcoholism diminished and when drinking increased these conditions promptly increased.

As Jolliffe¹ pointed out in his Bellevue report, the pressure of social opinion became more and more emphatic from 1909 to 1919, leading to diminished drinking and then to the adoption of the prohibition amendment. It was in this decade that our statistics showed decrease. Then came the "great revolt" against the limitation of our personal liber-

ties, followed by the hip flask, bootlegging and, finally, repeal. During these last two decades again, the incidence of alcoholism as indicated by hospital admissions has increased to the original volume.

One is rather overwhelmed by statistics referred to in a book entitled *Alcohol—One Man's Meat*, by Strecker and Chambers in 1938.² Dr Strecker is professor of psychiatry at the University of Pennsylvania. Let me quote their statements: "Statistics not yet thoroughly checked are alarming. Drinking seems to be rapidly increasing among young people. A report of one insurance company indicates that the proportion of rejections, 'involving heavy alcoholic indulgence' in the age group under 30, in 1936, was almost three times the proportion in 1932.

"The percentages are as follows:

April 1, 1931, to March 31, 1932—11.9 per 100	} Increase, 183 per cent
April 1, 1934, to March 31, 1935—29.7 per 100	
April 1, 1935, to March 31, 1936—33.7 per 100	

"This table includes only cases of indulgence sufficiently heavy to be a factor in rejections."

From my own personal experience at Twin Elms, a ten-bed psychiatric hospital unit, figures for ten years from 1929 to 1939, indi-



FIG 2 Specific male and female alcoholic admission rate per 1,000 male and per 1,000 female population, New York City, ages 25 to 64. Plotted on a semi-logarithmic scale. Norman Jolliffe Science 83 No 2152, 308 (March 27) 1936

TABLE 1—RATES OF NEW CASES OF ALCOHOLIC MENTAL DISEASE IN URBAN AND RURAL DISTRICTS OF NEW YORK STATE 1917-1931¹

Year	Number of Cases			Rates per 100,000 of General Population of Same Environment	
	Urban	Rural	Environment unascertained	Urban	Rural
1917	537	52	5	6.6	2.8
1918	309	44	1	3.7	2.4
1919	243	26		2.9	1.4
1920	110	11	1	1.3	0.6
1921	182	11		2.1	0.6
1922	209	15	2	2.3	0.8
1923	253	18		2.8	1.0
1924	342	31		3.7	1.6
1925	358	36		4.1	1.9
1926	378	43	1	3.9	2.3
1927	506	44	4	5.1	2.2
1928	468	40	1	4.6	2.0
1929	482	55		4.7	2.7
1930	516	30		4.9	1.5
1931	540	69		5.1	2.8

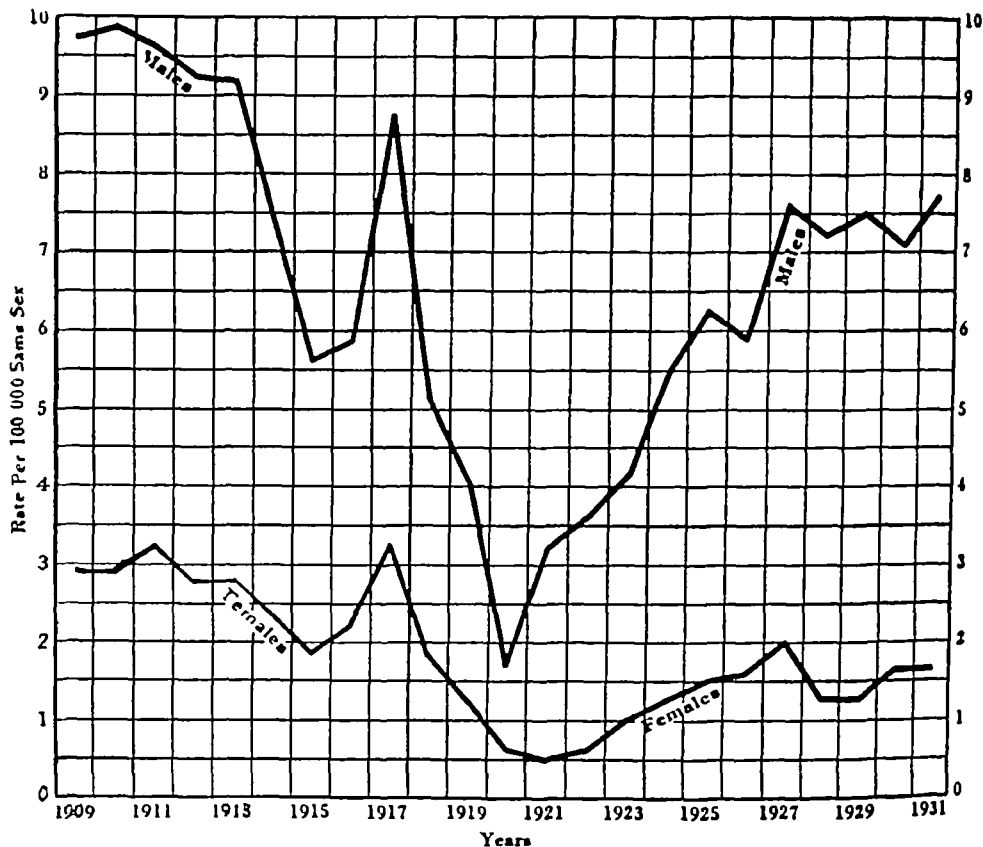


FIG 3 Rates by sex of first admissions with alcoholic psychosis, New York Civil State hospitals, 1909-1931

TABLE 2 —FIRST ADMISSIONS WITH ALCOHOLIC PSYCHOSES, 1909-1938*

Year	Number			Number per 100,000 of General Population		
	Men	Women	Total	Men	Women	Total
1909	433	128	561	9.7	2.9	6.3
1910	452	131	583	9.9	2.9	6.4
1911	444	147	591	9.6	3.2	6.4
1912	434	131	565	9.3	2.8	6.1
1913	438	134	572	9.2	2.8	6.1
1914	348	116	464	7.3	2.4	4.9
1915	255	90	345	5.3	1.9	3.6
1916	215†	82†	297†	5.0†	2.2†	4.1†
1917	437	167	604	8.8	3.2	6.0
1918	257	97	354	5.1	1.9	3.5
1919	204	65	269	4.0	1.3	2.6
1920	90	32	122	1.7	0.6	1.2
1921	167	28	193	3.2	0.6	1.8
1922	194	32	226	3.6	0.6	2.1
1923	220	58	276	4.1	1.0	2.6
1924	302	71	373	5.5	1.3	3.4
1925	341	81	422	6.2	1.5	3.8
1926	333	89	422	6.0	1.6	3.7
1927	410	114	554	7.6	2.0	4.8
1928	430	79	509	7.2	1.3	4.3
1929	459	78	537	7.5	1.3	4.4
1930	446	100	546	7.1	1.6	4.4
1931	497	102	599	7.7	1.6	4.7
1932	462	131	593	7.0	2.0	4.5
1933	558	150	708	8.3	2.2	5.3
1934	724	160	884	10.5	2.3	5.6
1935	620	164	784	8.8	2.4	5.6
1936	638	188	826	8.9	2.6	5.8
1937	714	163	877	9.7	2.3	6.0
1938	679	152	831	9.1	2.1	5.6

* Fiftieth Annual Report of the Department of Mental Hygiene July 1 1937, to June 30, 1938 Legislative Document (1939) No 27 P 170 J B Lyon Company Albany

† Includes nine months due to change in fiscal year

‡ Estimated for twelve months

cate that I have treated 69 cases of alcoholism, as noted in Table 3. In the same time I treated 291 cases of other mental and nervous ailments. The incidence of alcoholism from these statistics was 2.37 per cent. However, this number of alcoholic addicts represents, I should estimate, less than a fourth of all cases that have come to my attention through the solicitations by relatives for advice and professional assistance. Such assistance was sought for individuals who had evaded proffered help by refusing to submit to hospital care, believing they do not need it and could care for themselves, or had so depleted their resources that they could not afford the cost of the treatment.

Etiology

In my experience it takes eight to ten years of drinking to make a helpless addict. Of these eight or ten years it is the drinking of the final two to three that is of such sort as to make the affliction noticeable to friends and associates. Though usually the victim is the first one to realize the enslavement, he refuses to acknowledge it. Instead, he fights it helplessly, making good resolutions only to find them broken after he comes to full consciousness after the next debauch, which now is always carried to the saturation point unless interrupted by some external interference from family or friends. The vicious cycle of good resolutions, overwhelming demand, saturation, feeling of defeat, demor-

alization, and loss of self-respect repeats itself more and more frequently and lasts longer and longer until either he or his friends or relatives seek help in desperation. It is remarkable how regularly this story is repeated in the history of these unfortunates. What is the explanation? I am convinced there is a deep-seated factor that is elusive and not as yet discovered. However, I have this hypothesis: Individuals have three types of reaction to alcohol. There is a group for whom alcohol has no appeal—it plays not the slightest role in their lives. It is wholly outside their sphere of interest.

A second group takes alcohol over long periods of their lives, moderately usually, and seems never to have the tendency to go further. The third group also drinks, at first moderately but gradually less and less moderately, and inevitably becomes enslaved by the drug to pursue the course of the vicious cycle.

TABLE 3 — ADMISSIONS TO TWIN ELMS FOR ALCOHOLISM FROM SEPTEMBER 1, 1929 TO OCTOBER 1, 1939

Sex		Occupation	
Male	61	Businessman	30
Female	8	Artisan	13
		Lawyer	6
		Socialite	4
		Physician	3
		Executive	2
		Housewife	2
Age		Contractor	2
Between 20 and 30	3	Engineer	2
Between 30 and 40	25	Railroader	2
Between 40 and 50	17	Nurse	1
Between 50 and 60	16	Teacher	1
Between 60 and 70	7	Policeman	1
Between 70 and 80	1		1

TABLE 4 — DEATHS FROM ALCOHOLISM*

Year	Total Deaths		Alcoholism	
	Number	Rate (per 1 000 est. pop.)	Number	Rate (per 100 000 est. pop.)
1937	1,450 427	11.2	3,305	2.6
1936	1,479 228	11.5	3,714	2.9
1935	1,392 752	10.9	3,349	2.6
1934	1,396 903	11.0	3,655	2.9
1933	1,342 106	10.7	3,297	2.6
1932	1,308 329	10.9	3,049	2.5
1931	1,322,587	11.1	3,933	3.2
1930	1,343 356	11.3	4,158	3.5
1929	1,386,363	11.9	4,339	3.7
1928	1,378 677	12.1	4,627	4.0
1927	1,236 949	11.4	4,372	4.0
1926	1,285 927	12.3	4,109	3.9
1925	1,219 019	11.8	3,694	3.6
1924	1,173 690	11.7	3,153	3.2
1923	1,193 017	12.2	3,145	3.2
1922	1,101 863	11.7	2,467	2.6
1921	1,032 009	11.6	1,611	1.8
1920	1,142,538	13.0	900	1.0
1919	1,098 436	12.9	1,367	1.6
1918	1,471 367	16.1	2,193†	2.7†
1917	1,068 932	14.3	3,907†	5.2†
1916	1,001 921	14.0	4,161	5.3
1915	909 155	13.6	2,934	4.4
1914	898 059	13.6	3,239	5.0
1913	890 848	14.1	3,733	5.9
1912	838,251	13.9	3,167	5.3
1911	839 284	14.2	2,866	4.9
1910	805 412	15.0	2,899	5.4

* United States. 1936 Vital Statistics Special Reports. Department of Commerce. Bureau of Census, Washington. October 25, 1939. vol. 7 no. 59 p. 670.

† Excludes deaths of soldiers, sailors, and marines.

above defined. It is clear that this group never should have taken alcohol at all. The inherent quality in this group of individuals which makes them vulnerable is as yet not fully defined.

My experience with them is that they uniformly are all temperamentally alike, they are most agreeable socially and they have an appealing personality. They are genial, companionable, kindly, and affable in social relationships, with a host of friends. They are soon welcomed wherever they may be. In their turn they desire social contacts and are restless, busy types—commonly, the extrovert. One is usually impressed by their intelligence and their inherent worth. They often come from the successful group of those who have done things until they are defeated by their slavery. When they have arrived at this state, it is fully apparent that they should never have used alcohol at all. And this is the crux of the whole matter.

Another apparent observation is that a number of such addicts, at present and for the past few years, began their drinking at college or in their early twenties during the earlier prohibition era. They were then in the age to be impressed and moved by the mode of surreptitious drinking and the "smartness" of it—the "fancy hip flask era." When I am approached by a wife, husband, or parent who is struggling with this problem in his family, I silently guess that he or she is from 35 to 45 years of age and this is usually correct. We are reaping the crop of prohibition-made drinkers. I am convinced that each generation since 1919 has had its crop of drinkers. It probably was also true before 1919, though now the harvest seems more ample.

Pathology

To attempt in this part of the discussion any degree of detail would be too burdensome upon you, but not to dwell upon some of the facts would be to lose some emphasis in the discussion attempted in this paper. The material here presented is taken from that part of *Alcohol and Man*, edited by Dr. Haven Emerson,³ devoted to "Chronic Alcoholic Poisoning," written by Dr. Harrison S. Martland, chief medical examiner of Essex County, New Jersey.

First, Dr. Martland points out that the fatty infiltration, especially of the heart and liver, commonly ascribed to alcohol may be found as well in obese persons who have developed their obesity from excessive eating and little exercise. For the same reasons the

same condition, of course, may be present in individuals who overindulge in alcohol. It is known, on the other hand, that chronically alcoholic persons who have an increased metabolic rate and do hard work may have organs that are in comparable states to abstainers of similar age. Therefore, fatty infiltration is not inevitably due to alcohol.

Alcohol produces its main damage in the central nervous system and peripheral nerves. However, Mott⁴ states "there is no specific lesion of the brain in acute or chronic alcoholism," though in chronic alcoholic cases the delicate covering of the brain shows a cloudy opaque and swollen state. The brain may be shrunken, the folds narrow, the fissures deep, and the vital gray layer thin, in delirium tremens the brain tissue is soggy, swollen, and pale. I should add here that Alexander of Harvard has shown by the incinerating method of microscopic study that an appreciable layer of calcium is found deposited beneath the outermost layer of the brain. These calcium or bonelike deposits cannot be dissolved away by natural repair.

Mild degrees of inflammation of the nerves are common in chronic alcoholism. In Korsakow's psychosis, frequently associated with such neuritis, sometimes there is found a multiplication of small blood vessels and an overgrowth of supporting tissues in the brain.

Chronic inflammation of the lining of the stomach with definite structural changes may be found, and Boyd⁵ states that in over 50 per cent of all alcoholic patients this may reach a stage of loss of the important glands and result in the absence of hydrochloric acid in the gastric juice.

Norris⁶ states that a fatty liver is the lesion that is chiefly associated with chronic alcoholism.

Fatty infiltration of the liver in alcoholism represents an increased or abnormal storage of fat in the liver cells, the result of the general obesity from the nonutilization of other food-stuffs occurring when alcohol is oxidized in the body.

Cirrhosis of the liver, "hobnail liver," is found in 4 to 6 per cent of all chronic alcoholic patients. Fifty to 60 per cent of all cirrhosis of the liver occurs in chronic alcoholic cases.

The kidneys apparently suffer little from alcoholism.

Clinical Data

As we develop the clinical history of these patients, there are some fairly uniform clinical facts revealed. As the years of drinking ad-

vance, noticeable personality changes become evident. There grows a progressive self-centeredness, an apparent selfishness, and a dulling of the sensibilities. The individual becomes less considerate. He loses his capacity for business and is negligent or impatient because of his preoccupation with his avocation of drink. He becomes irritable, rigid in his ideas and social attitudes, or he may begin to show excessive sensitiveness or paranoid tendencies. Later, he becomes obtuse, his moral and ethical values change, and he gets into unfortunate difficulties with his business associates, his employers, or business clientele. His behavior, when called to his attention, he blandly excuses with evident unconcern.

Beyond this in grades of disorders due to severer alcoholism are delirium tremens, alcoholic hallucinosis, and Korsakow's psychosis. Delirium tremens is an acute confused state with predominant visual hallucinations. A more prolonged disorder is the alcoholic hallucinosis, which is characterized by paranoid delusional formation and hallucinations, usually of hearing. The most severe and hopeless disorder is the Korsakow's syndrome. Here is a profound condition of mental changes in which the memory is all but gone and is replaced by fabrications of bizarre character in the mental production. There are also associated extreme grades of polyneuritis.

Social Aspects

Those of us who lived our early lives before the first World War period know that in that period the attitude toward drinking was quite different than following it. Then, it was decidedly not common to feel the need of serving "drinks" at a home gathering. In business the mode was not to "high pressure sales" by way of dinners, drinking, and night clubs. Rather, employees in business were carefully scrutinized as to their drinking habits. In college there were rare beer parties, but a college social function was scandalized by a "lit" college man. A college woman who drank was unheard of and inconceivable. Then came the war and prohibition. The "he-man" rose up in righteous indignation at the challenge to his personal liberties and started to "show the world." He talked and acted so vigorously or belligerently as to make it seem quite effeminate not to show one's "backbone" by carrying a hip flask. Soon the high school children were doing it, as well as college girls

and boys. I know even of an instance of a mother who gave her 16-year-old daughter a flask as she was going to a party so that she would not be endangered by poisoned bootleg liquors. The mode spread to locker rooms and bridge tables.

Thus, in a relatively few years I should say, we lost the benefits derived from some fifty or more years of what was really preventive medicine, though it was unfortunately often in the guise of moral or religious propaganda.

All good medical authority recognizes that alcohol in immoderation reduces the efficiency of the individual, as well as dulls his ethical and moral sensibilities, and makes him less and less a social and economic asset. In business he becomes a hindrance to an organization from the changes slowly wrought in his personality before it is recognized. Adolf Meyer phrases it as follows: "Alcohol does much of its harm by its relatively insidious, apparently insignificant effects on the management of individuals and social life. It is difficult to say where the definitely conspicuous effects in the production of clearly pathological consequences begin. The usual effects of alcoholized sociability and their lowering of standards can be more or less covered up and made up for. At any rate, they may disappear in the immediate gain of gratification and joviality and the reduction of tension and any burdensome sense of responsibility, but usually at the expense of ultimate performance and of the family budget and of interest in more far-reaching civic enterprises, of provisions for education, of the cultivation of amusements free from alcohol, and of the general standards of social life." He also says: "Any easy method of escaping responsibility implies a lowering of standards and avoidance of effective solution."

The greater the multiplication of individual instances of alcoholism, the greater the weakening of the social fiber of a community. The wastage in living is intangible and incalculable, but nevertheless positive and lamentable.

Treatment

In the individual case the treatment is often discouraging in its results. Yet the need for treatment is so challenging that we must accept the challenge, for there is no other source of help that can give as much as the medical man. However, we are greatly limited because the essential cause is not known and

may be so deep-seated in the personality constitution of the individual as to balk nearly all effort. However, striking benefits can frequently be attained, which is the only encouragement we have.

The only known methods that give any lasting results aim to attain capacity for total abstinence. This involves complete control of the sufferer by residence, for a time, in a special hospital where complete surveillance is maintained. I have established the rule that acceptance of each problem is conditioned upon willingness to submit to a minimum period of treatment of six weeks. The effort then is directed toward three objectives: first, "detoxication" or elimination of the effects of alcohol; second, physical rebuilding by healthy living, good food, and graduated physical exercise; and, third, complete psychiatric survey of the personal problems and essential psychic conflict. Each individual is led to the appreciation of the extent of these conflicts upon himself; he is then helped in the reformulation of his attitudes toward them, and proper adaptation to them is outlined for him. Finally, he is led to appreciate fully the price he pays in life's values for his overindulgence.

The real approach to this problem, I believe, is through prevention, and the way to this must be by social effort directed to mass education. This movement can best be led by the medical profession. A sustained campaign in this direction is assuredly an effort in preventive medicine, which the statistics I have presented fully justify. The statistics fully illustrate and emphasize that generally less drinking and fewer drinkers mean fewer alcoholic victims, and the only effective means to promote less drinking is to develop a strong social attitude against drink-

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ARMY COLD WEATHER HEADGEAR

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Adapted from the Eskimo parka for Army use, the hood is made of wind- and water-resistant poplin. Tightening a drawstring brings the hood together in front to cover almost the entire face. The attached shawl protects the back of the

soldier's head and fits down over the top of his shoulders.

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During his Antarctic experiments, Dr. Paul Siple developed a formula to measure the effects of wind on the heat loss of the body. He found that whereas a person wearing only a medium heavy sweater is reasonably warm at zero temperature he quickly becomes cold if there is a wind of even 10 miles an hour velocity, because his heat loss increases in proportion to the increase in the velocity of the wind.—*J. A. M. A.*

BLEEDING AS A LATE SEQUELA OF GASTROENTEROSTOMY AND SUBTOTAL GASTRECTOMY OF THE BILLROTH II TYPE FOR DUODENAL ULCER

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DUODENAL ulcer, as a rule, responds favorably to medical therapeutic measures. It becomes a surgical problem when such treatment fails to relieve pain, when gross hemorrhages of a severe degree are repeated, and when a pyloric stenosis persists or an acute perforation occurs. If surgery is indicated, various procedures are available. There are, however, two main operative approaches: one the more conservative procedure of gastroenterostomy, the other, the more radical subtotal gastrectomy.

There is no doubt that gastroenterostomy usually heals a duodenal ulcer, and in the majority of cases the patients are relieved of their symptomatology. However, not infrequently, a more serious train of symptoms may follow. This is due, in most instances, to the development of jejunal or gastrojejunal ulcerations. The incidence of this untoward and serious complication following gastroenterostomy varies in different clinics. However, as the refinements of diagnosis have become better and patients have been followed more carefully and for longer periods, the incidence of jejunal and gastrojejunal ulcerations has assumed increasing proportions. These complications have been observed to occur as soon as a few weeks and as late as twenty-five years after the primary operation has been performed.

In an effort to avoid these unfavorable sequelae of gastroenterostomy, the operations of Billroth I and II type of subtotal gastrectomy were introduced two decades ago for the treatment of gastroduodenal ulceration. While the former procedure has enjoyed great popularity on the Continent, the modifications of the Billroth II type of resection have been used almost exclusively in the surgical clinics of this country. The advocates of subtotal gastrectomy stressed the importance of the acid factor in ulcer pathogenesis and contended that jejunal ulcerations followed gastroenterostomy because that operation failed to control the secretion of free HCl in the stomach. It was argued that since peptic

ulceration seemed to occur in the presence, and not in the absence, of free HCl the creation of a gastric anacidity should be a reasonable means for the prevention of a recurrence. When subtotal gastrectomy was first proposed, the resection of the pylorus and antrum was expected to effect a gastric anacidity because it removed the antral-stimulating influence on the acid-secreting fundic glands. Physiologic studies have revealed that the removal of the antral stimulus affects only the gastric phase of gastric secretion. Theoretically, a subtotal gastrectomy, therefore, should diminish but not necessarily eliminate the secretion of free HCl. Experience has shown this to be actually so. For some undetermined reason the operation seems to bear out its anticipated effects with gastric ulcer but not with duodenal ulcer. There are many patients who, after a Billroth II operation for duodenal ulcer, still secrete free HCl in appreciable amounts. These patients are, therefore, candidates for further trouble. Some develop jejunal or gastrojejunal ulcerations manifested by hemorrhage, with or without pain. It is this bleeding, occurring as a late sequela of gastroenterostomy and subtotal gastrectomy, which will form the basis of this communication.

Recently, Ginzburg and Mage¹ reviewed 88 cases in which partial gastrectomy had been performed for the relief of recurrent symptoms after gastroenterostomy for duodenal ulcer. The pathologic findings in the resected specimens were correlated with the clinical history and radiologic findings. Certain significant observations were made in a group of 15 patients in whom hemorrhage was a prominent symptom. These cases do not represent the total number of such cases seen in our clinic. They merely comprise a group in which the pathologic studies of the resected specimens not only offered an insight into the nature and sources of bleeding after gastroenterostomy for duodenal ulcer but also suggested a basis for therapy.

In this group there were 14 men and one woman. Their ages were divided equally between the third, fourth, and fifth decades. The hemorrhages occurred at intervals varying from a few months to eighteen years after

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gastroenterostomy, and in 5 patients there was a free interval of more than ten years. Most of the group had several episodes of melena or hematemesis, and in 6 cases the bleeding was severe enough to reduce the hemoglobin below 30 per cent.

All these patients were treated conservatively during the acute phase of hemorrhage, operations being deferred until there was a quiescent period.

These 15 patients may be further divided into two groups—one in which hemorrhage was the sole symptom and another in which the bleeding was preceded, accompanied, or followed by ulcer symptoms—especially pain.

Painless Bleeding After Gastroenterostomy

There were 6 patients in whom the presenting complaint was hemorrhage without pain, and in 4 of these cases the bleeding was most severe. It is interesting to note that the x-ray findings showed evidence of a jejunal ulcer in only 1 case, while the resected specimens revealed either superficial healing gastroduodenal or jejunal ulcers. It must be borne in mind, however, that these patients were operated upon only after prolonged bed rest and medical treatment. It is not unusual to observe a similar pathology in specimens obtained from a gastrectomy in cases of primary duodenal ulcers which have received comparable preoperative treatment. The ulcerations in this type of case, too, are superficial and show no tendency to penetrate into adjacent vessels.

Bleeding After Gastroenterostomy Associated with Pain

There were 9 cases in which bleeding was associated with pain, and in 5 of these the hemoglobin fell below 40 per cent. The pain was of a severe type, which had grown more and more intractable. In spite of thorough ulcer therapy, the surgical explorations disclosed evidences of active disease, and the resected specimens revealed penetrating ulcerations of either the jejunum or gastroenteric stoma without tendency toward healing.

Bleeding After Subtotal Gastrectomy (Billroth II)

Since 1923 we have followed for a year or longer over 429 ward patients in whom a duodenal ulcer was the original lesion and upon whom a subtotal gastrectomy (Billroth II) was performed. Eighteen of these patients

are known to have experienced gross hemorrhages, i.e., either melena or hematemesis. The clinical features of these cases, which closely simulate those following gastroenterostomy, may likewise be divided into two groups—bleeding, without and with pain.

Painless Bleeding After Subtotal Gastrectomy

There were 13 patients in whom bleeding was the sole symptom. The hemorrhages occurred at intervals varying from a few months to 12 years after operation and varied from a moderate to a severe degree, the hemoglobin falling below 30 per cent in 4 patients. Eight of these cases had experienced gross hemorrhages of a severe degree prior to subtotal gastrectomy, and in 4 cases there had been more than one episode. Three of the cases with multiple bleedings before gastrectomy bled several times after operation at varying intervals. All cases responded to conservative therapy. After the acute symptoms had subsided, certain diagnostic procedures were instituted. Gastric analyses revealed free HCl in appreciable amounts in the 12 cases in which such studies were made. The x-ray examination was negative in 9 patients. However, the roentgenogram showed that a jejunal ulcer was present in 1 and that a lesser curvature gastric ulcer was present in 2 other cases. The twelfth case, in which a gastroduodenal ulcer was shown in a previous x-ray examination and in which active ulceration was seen by gastroscopy, presented a healed lesion subsequently at the time of secondary exploration.

Bleeding Associated with Pain Following Subtotal Gastrectomy

There were 5 cases. The hemorrhages occurred at intervals varying from a few months to three years after operation and were severe enough in 3 patients to reduce the hemoglobin below 40 per cent. Two of the cases, which had had pain with severe hemorrhages prior to subtotal gastrectomy, had a prompt recurrence of these symptoms after the operation. Free HCl of high concentration was present in the gastric analysis of all cases, and x-ray studies revealed evidences of jejunal ulcers. These patients, with tangible evidences of penetrating jejunal ulcers, remained intractable to medical therapy.

In 2 cases, surgical exploration disclosed acute penetrating ulcers of the jejunum. The other 3 cases have been continued on medical therapy. One of these patients has had eight

readmissions to the hospital for intractable pain, which was complicated on two occasions by bleeding. A second patient has had three hemorrhages in the past two years.

Discussion

It appears from this study that when bleeding occurs following a gastroenterostomy or subtotal gastrectomy for a duodenal ulcer it is usually due to an ulceration in the jejunum and only occasionally to such a lesion in the stomach or duodenum. In these cases free HCl is invariably present in appreciable amounts. When bleeding is painless, the ulceration as a rule is superficial. When the bleeding is associated with pain, the ulceration is generally found to be deep and actively penetrating. It has been seen that the degree of bleeding is no indication of the depth of the ulcer, for patients with superficial lesions bled as severely as those with deep ones. No patient in this series died from bleeding. It is recognized, however, that there is always the possibility of a fatal termination with gross hemorrhage from any peptic ulcer. The first death in this clinic from a late bleeding following gastroenterostomy for a duodenal ulcer occurred during the past year. A postmortem examination revealed an erosion in the jejunum as the source of the hemorrhage. Because of the rarity of a fatal complication and the fact that surgery in secondary ulcers following gastroenterostomy and subtotal gastrectomy is so hazardous, it is strongly felt that the bleeding in this group should always be treated conservatively.

In this study, the majority of patients who bled following gastroenterostomy and subtotal gastrectomy also bled before operation. While this may suggest the possibility of a bleeding diathesis, there has been no evidence to prove such a contention. It seems far more likely that the hemorrhages that recur in the same individual before and after a gastroenterostomy or a subtotal gastrectomy for duodenal ulcer are merely the results of the recurring ulcerations. For the same reasons we feel that the frequency of bleeding is purely fortuitous and is dependent upon the factors that determine the remission or recrudescence of peptic ulcer.

In this discussion no distinction is made between "erosions" and the "chronic peptic ulcer." However, these lesions are different pathologically. Erosions are frequently ascribed to "gastritis," "duodenitis," or "jejunitis." They are a manifestation of peptic ulcer when they occur in an individual with a known

ulcer diathesis and in the presence of free HCl. This is a well-recognized point of view. Opinions differ only as to whether gastritis is a precursor or an associated effect of peptic ulceration.

Patients who present bleeding without pain as a rule respond to conservative medical therapy because, as has been demonstrated, the ulcerations are superficial and heal readily. This has been noted in the painless bleeding attributed to erosions or superficial ulcerations of the duodenum. It has been seen in the gastrojejunal ulcerations that follow gastroenterostomy and the Billroth II type of subtotal gastrectomy. The conservative therapy employed may consist of any of the approved medical methods (Meulengracht's diet, absolute gastric rest, sedation) with parental administration of saline glucose and blood. Surgery that entails an appreciable mortality is to be avoided.

Bleeding accompanied by pain presents a different problem. It portends a penetration of an ulcer which, in most instances either because of intractability to medical treatment or because of mechanical complications, requires surgical interference. Operation should be done during a quiescent stage. The best end results in the treatment of gastrojejunal ulceration associated with pain and hemorrhage following gastroenterostomy are obtained by resection of the jejunal ulceration and radical subtotal gastrectomy.

However, the group of patients which presents bleeding with pain following subtotal gastrectomy is in a different category, for—regardless of the extent of gastric resection, the adequacy of alkaline intestinal regurgitation, and the rapidity of stomach emptying—the gastric analysis still shows free HCl.

Free acidity, combined with an underlying ulcer diathesis, produces an ulceration that appears to be almost malignant in its tendency to recur. Conservative medical therapy, while it is temporary in its effect and at times futile, still offers more than any further radical surgery that is almost always fatal.

Conclusion

Bleeding, manifested by melena or hematemesis with or without pain, occurs as a sequelae of gastroenterostomy and subtotal gastrectomy. Bleeding without pain following either type of operation is usually due to a superficial ulceration and, as a rule, responds to conservative therapy. Bleeding with pain is invariably due to active penetrating ulceration.

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THE OPHTHALMIC QUACKS OF LONDON

An ophthalmic surgeon, Mr E W Brewerton, has contributed to *St Bartholomew's Hospital Journal* an account of the ophthalmic quacks who have flourished in London during the last twenty years These quacks may be classified as (1) those who say that every chronic eye condition can be cured by glasses, (2) those who claim the same for other means, usually electricity, (3) those who claim to relieve every error of refraction by exercises and say that all glasses are unnecessary, (4) the osteopaths, who will guarantee a cure for everything from prunus ani to detached retina by replacing a displaced vertebra, and (5) the psychoanalysts The first class orders patients suffering from errors of refraction, cataract, optic atrophy, or macular degeneration to read for a certain number of hours daily with strong magnifying glasses A man named Fournier, who was backed by a well-known admiral, was the originator of this method He claimed that his glasses were of secret manufacture He flourished for many years until the business was taken over by Wright, who died after a few years of lucrative practice, to be followed by his brother The present proprietor of the business displays a printed notice that he cured a certain cabinet minister when London ophthalmologists failed

The quacks who claim to cure by electricity flourish on the many who have a horror of operation on the eye A man with advancing cataract was told to attend three times a week at a fee of \$30 One pole of a galvanic battery was applied to the neck and the other was passed round the orbit At every visit the nurse told him he was better, but as his vision deteriorated the chair was put nearer to the type to make him believe that he was improving At least six rooms used in the house were always full, the proprietor must have been making \$250,000 a year The patient was told that his was a difficult case and that another course was necessary This he declined

Those who treat presbyopia and errors of refraction by exercise and say that all glasses are unnecessary deny that accommodation depends on the ciliary muscle and attribute it to the extrinsic muscles of the globe Their leader says that the more the eyes are used the stronger they get and that light, especially sunlight, is a cure for all kinds of defective sight Mr Brewerton mentions the case of a boy with 4 diopters of myopia who was promised a cure After twelve months' treatment by exercises he could not see 6/60 and his error is now 4 5 diopters —J A.M.A. *London letter*

SCIENTIFIC EXHIBITS

1942 Annual Meeting

Applications for space for the scientific exhibits should be made directly to

Dr J G Fred Hiss,
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Chairman of Subcommittee on Scientific Exhibits of the Convention Committee

The Annual Meeting will be held April 27-30, 1942, Hotel Waldorf-Astoria, New York, New York The list will be closed on January 1, 1942

PETER IRVING, M D, Secretary

VASOMOTOR RHINITIS

A Clinical Study of 45 Cases

HENRY I. SHAHON, M.D., F.A.C.P., Medical Officer, Veterans Administration, Albuquerque, New Mexico

FORTY-FIVE cases of vasomotor rhinitis were selected from the asthma and hay fever adults' clinic of the New York Post-Graduate Medical School and Hospital with the following points in mind (1) age of the patient, (2) age of the onset of symptoms, (3) race, (4) nationality, (5) sex, (6) occupation, (7) presence or absence of allergy in the family history, (8) number of years the patient was under treatment, (9) chief complaint, (10) presence or absence of associated allergic conditions, (11) presence or absence of associated nonallergic conditions, (12) knowledge of the presence of any food aversions, (13) knowledge of the presence of any drugs causing or aggravating symptoms, (14) knowledge of the presence of any contacts proved clinically to have caused symptoms with positive skin tests before treatment, (15) the findings of the direct nose and throat examination, (16) determination of sinus infection by—(a) history of frequent colds, (b) transillumination, (c) x-ray examination, (d) exploratory puncture, (17) positive skin tests, (18) specific treatment, (19) nonspecific treatment, (20) amount of improvement

(1) *Age of the Patient*—The ages ranged from 15 to 45 years. There were 8 patients in the second decade of life, 13 in the third, 8 in the fourth, 12 in the fifth, and 4 in the sixth.

(2) *Age of the Onset of Symptoms*—The age of onset of symptoms ranged from 8 to 50 years—that is, the youngest patient developed vasomotor rhinitis at 8 and the oldest at 50 years. There were 1 in the first decade of life, 12 in the second decade, 15 in the third, 7 in the fourth, and 10 in the fifth.

(3) *Race*—All patients under study belonged to the white race, except 1 who was a mixed breed.

(4) *Nationality*—Thirty-one were Americans—that is, born in the United States but still of recent foreign extraction—4 Russians, 1 Rumanian, 3 Italians, 1 Irishman, and 1 Puerto-Rican.

(5) *Sex*—There were 12 men and 33 women.

(6) *Occupation*—There were 23 housewives, 1 attorney, 1 clerk, 1 bookkeeper, 6 students, 2 salesmen, 2 nurses, 3 tailors, 1 upholsterer, 1 musician, and 4 unemployed.

(7) *Presence or Absence of Allergy in the Family History*—Twenty-seven patients or 60 per cent gave a positive family history of allergy (asthma, hay fever) in one or more antecedents. Eighteen patients or 40 per cent gave a negative family history of allergy in the antecedents. This corresponds very well with the work of Cooke and Span¹ on the inheritance factor in asthma and hay fever.

(8) *Number of Years the Patient Was Under Treatment*—Of the 45 cases studied, 1 had received seven years of treatment at the clinic, 3, six years, 1, five years, 4, four years, 1, three years, 6, two to three years, 23, one to two years, and 6, less than one year.

(9) *Chief Complaint*—The chief complaint of all the 45 cases was vasomotor rhinitis—that is, one or more of the following symptoms: (a) nasal congestion or occlusion of varying degrees, (b) fullness and discomfort in the paranasal sinuses, (c) watery or mucoid discharge from the nose, (d) sneezing, (e) itching in the nose, throat, palate, ears, or skin of the face, (f) hoarseness from congestion or edema of the larynx, (g) soreness and congestion of the larynx, (h) impaired hearing, (i) hawking or clearing of the nasopharynx and throat, (j) lacrimation, itching, burning, or redness of the conjunctiva.

In some, these symptoms were revealed in paroxysms, in others, they were more pronounced from arising until midmorning or noon or on retiring.

(10) *Presence or Absence of Associated Allergic Conditions*—The associated allergic conditions were (a) bronchial asthma, 4 cases, (b) hay fever, 19 cases, but only 12 patients knew it beforehand, (c) neurodermatitis, 1 case, (d) urticaria, 7 cases, (e) migraine, 1 case, but not severe.

(11) *Presence or Absence of Associated Non-allergic Complaints*—The associated nonallergic conditions were (a) emphysema, 1 case, (b) cholecystitis, 1 case, (c) pulmonary hemorrhage, 1 case, (d) endocervicitis and menopause, 1 case.

From the Department of Medicine, Division of Applied Immunology, New York Post-Graduate Medical School and Hospital, Columbia University, New York City.

(12) *Knowledge of the Presence of Any Food Aversions*—Not one patient knew definitely that foods could aggravate or cause the vasomotor rhinitis symptoms. There were, nevertheless, a few who complained of vague, mild, gastrointestinal disturbances accompanied by slight headache.

(13) *Knowledge of the Presence of Any Drugs Causing or Aggravating Symptoms*—Likewise, with the drugs, not one patient knew that their ingestion or topical application would increase or cause any symptoms of vasomotor rhinitis.

(14) *Knowledge of the Presence of Any Contacts Proved Clinically to Have Produced Symptoms with Positive Skin Tests Before Treatment*—Only 1 patient knew definitely that each time he petted a cat he would develop symptoms of vasomotor rhinitis and slight dyspnea.

(15) *The Findings of the Nose and Throat Examination*—The direct nose and throat examination revealed 41 cases of vasomotor rhinitis. The examination of these patients was performed by a competent rhinologist attached to the asthma and hay fever clinic. Practically all these cases showed varying degrees of these findings: blanched, swollen mucous membrane, boggy, blanched inferior and middle turbinates, and a thin discharge or rhinitis.

(16) *Determination of Sinus Infection by*
 (a) history of frequent colds—18 patients gave a history of having frequent colds.
 (b) Transillumination—transillumination disclosed 11 cases of sinusitis, of these, 7 were definitely confirmed by positive x-ray findings and subsequent exploratory punctures.
 (c) X-ray examination—x-ray examination seemed indicated by the rhinologist in only 7 cases. These were the findings: membranous infiltration of right antrum and both ethmoids, 4 cases, slight membranous infiltration of right antrum alone, 1 case, membranous infiltration of left antrum alone, 1 case, membranous infiltration of both antrums and ethmoids, 1 case.
 (d) Exploratory antrum puncture—exploratory puncture revealed negative findings in all but 5 cases. Autogenous vaccine from the antrum washings was prepared in 2 cases only.

(17) *Positive Skin Tests*—All patients were thoroughly tested by the intracutaneous method with all the inhalants and foods. The reactions were recorded as slight, moderate, or marked depending upon the size and outline of the wheal and the amount of erythema, with or without itching of the site.

Only the marked reactions are recorded in this paper. There were, of course, some slight and moderate reactions also. Thirty-eight patients reacted to house dust, 1, to tree pollens (this same patient was sensitive to timothy and plantain), 10, to timothy and plantain, 14, to ragweed (5 patients were from the timothy- and plantain-sensitive group), 17, to feathers (chicken, goose, and duck), 7, to orris root, 3, to dog, 2, to cat, 2, to silk, 1, to horse epithelium, 1, to rabbit, 1, to kapok, 1, to cottonseed, 1, to trichophyton, and 1 each, to egg, chocolate, orange, pork, lamb, beef, tomato, tea, white potato, green peas, spinach, banana, and cantaloupe.

(18) *Specific Treatment*—Before undertaking any form of specific treatment each case was carefully summarized, and the following points were again taken into consideration: (a) careful review of the family and past histories, (b) the question of previous nasal operations, (c) the environmental factor, (d) the seasonal influence, (e) food idiosyncrasies, (f) the question of retesting where necessary, even the employment of the indirect method of testing of Prausnitz and Küstner.²

In every case the hyposensitization, desensitization, or immunization method was started. Instructions were given regarding elimination of the offending agents from their immediate environment and the diet.

The most important extracts used for immunization were house dust, feathers, and orris root. At times, rabbit, cat, dog, and silk were also used.

Each patient received weekly injections of the extracts to which he was found sensitive. At first, the marked reactions were taken into consideration. Later, the moderate, and at times slight, readings were also considered in the order of their importance.

The patients who reacted to pollens and knew definitely that they felt worse during the seasons of pollination were treated as the case indicated, they received weekly injections of the respective pollens.

There were 19 cases of pollen sensitivity in all. One patient was sensitive to timothy, plantain, and three pollens, 4, to timothy and plantain, 5, to timothy, plantain, and ragweed, the last 9 patients, to ragweed (giant or tall and dwarf or common ragweed). Of all these 19 pollen-sensitive cases, only 12 patients knew that they had had hay fever before being tested. The remaining 7 patients, even though they reacted to pollens, were not treated, since they did not know

definitely whether or not they felt worse during the spring, summer, or fall. However, they were instructed to observe any increase of severity of symptoms of vasomotor rhinitis during these pollinating seasons.

There were 13 clear-cut cases of vasomotor rhinitis—that is, those without any other associated allergic conditions. They received subcutaneous injections of the offending allergens in gradually increased doses until sufficient tolerance was obtained. The maximum doses given to these patients ranged as follows: $\frac{3}{10}$ cc of concentrated house dust, 5,000 protein nitrogen units of feathers extract, 5,000 to 10,000 protein nitrogen units of ornith root extract. For those who received injections of other animal epitheliums—like dog, cat, and rabbit—the maximum dose for each was approximately 1,000 protein nitrogen units (One Cooke and Stull protein nitrogen unit equals 0.00001 mg of protein nitrogen of pollen). In the case of inhalants and foods, each substance has its specific proportion between the total and the protein nitrogen.)

There were exceptions, of course, each patient was studied individually. The above method of immunization or hyposensitization was selected when elimination or avoidance of the offending agent was impossible or impractical.

The problem of food sensitization was studied by the combined method of trial and elimination. All the foods and drugs that the patient knew would cause or increase his symptoms of vasomotor rhinitis were eliminated from his diet. As previously stated, this condition was not known to any of the patients under study.

The next procedure was the elimination of all foods that gave marked positive skin tests from the patient's diet. Each patient was also asked to keep a dietary diary of all foods eaten and to note the time and place of the development of any symptoms of vasomotor rhinitis or its allied conditions. If he was symptom-free on this kind of diet for a period of a week, he was told to introduce another of the foods giving a marked positive skin test in his diet. If the food this time caused any symptoms of vasomotor rhinitis, within a half hour or longer, it was removed from the diet. This food was again tried at some later period to ascertain its true allergenic nature.

If the patient's condition remained unimproved after removing from his diet the foods that reacted markedly, then the same

procedure was undertaken with the moderate and the slight reactions. In each case, foods giving positive skin tests and those suspected from a study of the food diary were excluded from the diet. When the patient became symptom-free, feeding of the suspected foods was again instituted. If symptoms followed, this observation was again checked and rechecked by repeated trial and elimination.

All other available methods—like the trial diet method of Ejerkmann,³ the trial diet of Vaughan,⁴ and the elimination diets of Rowe⁵—may be tried. The immunization or hyposensitization method alone is not sufficient, the combined method of immunization and food elimination as described is the desired one.

The general consensus is that foods do play a certain role in the causation of vasomotor rhinitis and other allied conditions, they should not be overlooked. Because a food gave a positive reaction on skin testing, it does not mean that clinically it is also positive. It is best that the tests and clinical symptoms agree, but this is not always the case. If the common offenders—such as milk, eggs, wheat, chocolate, nuts, pork, mustard, fish, shellfish, strawberries, and oranges—are removed from the diet and if also all the foods the patient dislikes, those he likes so much that he overeats, and those he fears and suspects of causing symptoms are omitted from his dietetic diary, the problem of food sensitization is much simplified.

There is no known hyposensitization method for foods which has proved to be of any great value. However, some believe that by giving orally small amounts of the offending foods and gradually increasing their amounts, the tolerance to these foods might be raised. This method so far has not proved to be effective.

(19) *Nonspecific Treatment*—The use of glandular extracts should be considered in these cases of vasomotor rhinitis. In the cases under study, one patient was definitely worse at the menopause. The administration of estrogenic substance parenterally aided her improvement.

Vitamin therapy was also tried in only a small number of patients with slight appreciable results. Some men like Rosenberg⁶ and others have shown that vitamins do play an important role in the allergic eczemas, asthma, and hay fever.

The medicinal use of ephedrine and epinephrine was tried, at times in the form of spray or local application and at times in the

form of capsules, from $\frac{3}{8}$ to $\frac{1}{4}$ grain each, twice or three times daily. Injections of epinephrine or adrenalin, 1 to 1,000, were used only when the symptoms were severe or during a constitutional reaction. Not many patients required injections of adrenalin during their treatment.

The infected cases—namely, those with sinus infection—were carefully examined by the rhinologist, and the necessary treatment was instituted. Some patients required suction and packing of the nose alone, while others required puncture of the antrums with subsequent washings with sterile isotonic solutions. These patients showed varying degrees of improvement.

(20) *Amount of Improvement*—The amount of improvement that the patients received is as follows:

Twenty-one patients received a great deal of relief—that is, they showed definite improvement. The majority were sensitive to house dust, feathers, orris, and pollens on direct testing. They were also sensitive, to a lesser degree, to foods and were free from any sinus infection. The therapeutic measures employed were those of immunization or hyposensitization and the combined method of trial and elimination of the allergenic foods.

Seven patients showed moderate improvement—that is, the paroxysms of rhinitis and sneezing became less and less following the treatment. Of these 7 cases, 1 patient had an infection of the antrum and improved when the rhinologic treatment of suction and packing was instituted.

Five patients showed a slight degree of improvement. Every one of these had an infection of the sinuses—namely, the antrums or ethmoids or both. There were no cases where radical operation, like the Caldwell-Luc, was necessary.

Six other cases fared poorly. Of these, 2 had sinus infection and were being treated, 1 was irregular in attendance, another discontinued the treatment too soon, the other 2 had other sensitivities that were overlooked.

The last 6 cases did not receive sufficient treatment, either specific or nonspecific, and were not ready for an opinion as to the degree of improvement received.

What is the proper management of the other group of allergic rhinitis or vasomotor rhinitis patients who present positive antecedent allergic histories, positive clinical symptoms and signs, but no positive skin tests?

As in the group with positive skin tests, all the ingestants, inhalants, and contactants that are known to cause any symptoms are first eliminated from the patient's immediate environment and diet. Then, a careful study of the nasal passages, roentgen-ray studies of the sinuses, cytologic and bacteriologic studies of the secretions, and possible antroscopic studies of the antrums, together with a careful history, are undertaken. If these patients present any obstruction in the nasal passages—like organized polypi, markedly deviated septums, or hypertrophied turbinates—they are removed or corrected. This conservative attitude should be taken after the allergy has been studied and brought under partial or complete control.

In individuals in whom allergic therapy fails to control symptoms, the repeated removal of polypi, washings of antrums, or local nasal therapy is justified provided some relief is given them.

The other methods that are still being used by several rhinologists are cauterization and ionization. Some use concentrated carbolic acid to paint the surface of the mucous membrane of the nose, others use other escharotics—like trichloroacetic acid—and the injection of absolute alcohol in the subcutaneous tissues. Their use is unscientific, and in Hansel's⁷ and other men's opinions they are apt to yield serious damage to the nasal mucosa. According to Alexander,⁸ this method of cauterization is usually unsuccessful in patients with definite allergies. Hansel⁹ again recently stated that good results might be expected from ionization—not cauterization—in those vasomotor rhinitis patients with negative skin tests and warned against the procedure in the presence of acute infection of the nose and sinuses. The relief obtained from either method is usually temporary, and as soon as the mucous membrane returns to its original state the symptoms reappear. Other rhinologists have recommended many other local therapeutic measures. They are warranted only when such nasal symptoms are not controlled by the adequate allergic diagnoses and therapy carried out over a prolonged period by an experienced allergist.

The use of vaccines, as in bronchial asthma, should not be overlooked. The important point, however, is to recognize all allergies other than bacterial before vaccine therapy based on sensitization to bacteria is instituted. Either stock or autogenous preparations may be employed. Skin tests with vaccine are of no diagnostic value so far as the etiology of

focus of infection in vasomotor rhinitis is concerned, but according to Thomas and his coworkers¹⁰ they are of definite assistance in selecting a suitable vaccine for the treatment of each patient

At the clinic, stock vaccine is mostly used. It contains these microorganisms: *Micrococcus catarrhals*, Friedländer's bacillus, *pneumococcus* (types I, II, III, and IV), *streptococcus* (hemolyticus and viridans), *staphylococcus* (albus and aureus), and *Bacillus influenzae*. At times, autogenous vaccine is also used. Favorable results are obtained as frequently with stock preparations as with autogenous ones. In any given case, however, one form may succeed where the other has failed. Dosage in vaccine therapy usually starts with small amounts, ranging from 50,000,000 organisms as the initial dose and gradually increasing to a maximum of 1,000,000,000 to 3,000,000,000. A slight delayed local reaction at the site of the subcutaneous injection is desirable, but not essential, for favorable results.¹¹ The doses are usually given at weekly intervals.

Physical allergy as a possible cause in a small group of vasomotor rhinitis is also to be considered. Chilling, change in temperature, weather, location and elevation, humidity and wind seem to exert a special influence on these patients for good or evil. They possibly act as secondary factors in the same manner as vapors, certain odors, and perfumes do—by stimulating the already existing sensitization in the cells of the tissue of the upper part of the respiratory tract.

Menstruation, pregnancy, and dysfunction of the thyroid and other gonads have been reported to be of secondary influence in some of the vasomotor rhinitis cases also. It is, however, possible that fluctuations in the female sex hormone may change the allergic balance. Some are of the opinion that the adrenals play a greater role in allergy. It is a well-known fact that epinephrine relieves and controls any allergic manifestations, even though transitory. It is also a fact that low blood pressure often exists in a large percentage of allergic patients. All this suggests a deficiency in adrenal activity. No striking results have so far been obtained from the ingestion or injection of adrenal substance.

Nervousness, excitement, and emotion as secondary factors have been mentioned to exaggerate any allergic state. The general trend is to condemn them when no other allergic causes have been found.

Conclusions

A series of 45 cases were taken at random from the allergy clinic for adults of the New York Post-Graduate Medical School and Hospital for purpose of study with twenty points in mind. Each point has been thoroughly discussed in this paper under separate headings, and as a result the following recommendations have been drawn.

1 To remove all the positive inhalants and foods, particularly those that are known to cause symptoms, from the patient's environment and diet.

2 To employ the immunization or hypsensitization method when necessary. To remember, of course, the long period of time necessary for successful immunization, from six months to a year or longer.

3 To make a careful survey of the patient's diet and eliminate the foods with positive skin tests from the diet, but to use good judgment and discretion in their elimination. If positive symptoms exist following their ingestion, to remove them immediately. To take care also not to endanger the patient's health by too much elimination, for more harm can be done by starvation.

4 To remove, if present, all foci of infection—like sinusitis, infected teeth, and others.

5 To prescribe the necessary medicinal treatment even though it is palliative at first. The useful drugs are ephedrine and epinephrine or adrenalin. Be on the lookout for ephedrine sensitivity. Also, to use vitamins when indicated and, likewise, glandular extracts in the suspected cases of hypogonadism, particularly at or near the menopause. Calcium and potassium are as yet of doubtful value.

6 A change in locality is sometimes advisable in some cases. It is best to tell the patient to go to a dry and warm climate. High altitudes seem to agree with the allergic patient.

7 The following recommendations are to be given the vasomotor rhinitis sufferers: (a) not to live in damp places, like basements or cellars, (b) not to sleep on feather pillows or mattresses, (c) not to have any pets (dog, cat, etc.) at home, (d) not to use face powder or other cosmetics containing orris root, (e) not to be engaged in dusty occupations, like tailoring, mulling, and sweeping, (f) not to use perfumes of any kind on their clothes or hair and lotions for setting the hair, (g) not to undertake long automobile rides, particu-

larly in an open car, and not to remain too long in crowded places

8 Finally, not to lose sight of the fact that we are dealing with a constitutional illness and not of vasomotor rhinitis alone. Hence, steps are to be taken to correct any abnormalities and to treat any other local or systemic disturbances that may be impairing the patient's health. In this manner one assists in restoring these poor unfortunates to as nearly a normal state as possible.

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NEW MOTOR VEHICLE SAFETY-RESPONSIBILITY LAW

A special bulletin from Joseph S. Lawrence, M.D., Legislative Bureau of the State Society, dated November 13, 1941, reads as follows:

"Are you familiar with the provisions of this new law which will go into effect January 1, 1942? If you are not, may I suggest that the next time you stop at a filling station for oil or gasoline, you ask for a pamphlet entitled *You and the New Motor Vehicle Safety-Responsibility Law*, which was published by the State Department of Taxation and Finance.

"The new law does not compel owners of motor vehicles to be insured—that is, it is not a compulsory insurance measure—but it does oblige owners to guarantee to maintain proof of future financial responsibility.

"The principal provision in which hospitals and physicians will be interested is that any owner of an automobile is liable for payment in full of all expenses resulting from personal injury to anyone involved in an accident where his car is at fault. Therefore, hereafter the hospital or physicians rendering services to persons injured in automobile accidents should not suffer the financial losses that they have suffered in the past.

"If an operator or owner involved in an accident was not insured or bonded, he must meet two specific requirements of the act if he wishes to retain driving and registration privileges: (1) immediately put up sufficient security to satisfy any judgment that might result from the accident and (2) immediately furnish proof of financial responsibility for the future.

"Bills should be rendered promptly to the patient or notice served the patient that the bill will be rendered in due time. If the responsibility for the accident is not his, he will pass the bill to the responsible party. Since the Commissioner of Motor Vehicles is empowered to suspend, within from ten to forty-five days after receiving a report of the accident that resulted in bodily injury, the driving license of operators and all registration certificates and plates of owners of motor vehicles in any manner

involved in the accident, unless they pay the bills or assume responsibility for their payment, it is obvious that the responsible parties will attempt to effect prompt settlement.

"This law should accomplish everything that we had hoped to achieve through our lien bill, so far as automobile accidents are concerned.

"The Department of Motor Vehicles has offered to detail one of its staff to discuss and explain the law to any medical society that might make a request. There is much more to the law than the features I have mentioned above, for instance, a man cannot escape his responsibility by going into bankruptcy. If he loses the license for operating one car, automatically he loses the licenses for any other cars that he may have in his possession. Until the judgment is satisfied, a car from which a license has been suspended or revoked cannot be licensed by any other person. This means that if a person sells his car or transfers it to another member of his family or anyone else after losing his registration privileges for any of the reasons above named, the new owner will not be able to obtain registration plates in this state for the car. The law applies to drivers from other states while they are operating cars in this state.

"If a person who has neither license nor registration becomes subject to the law as the result of an accident, he will be barred from driving or registering a car in this state. Failure to report an accident constitutes a misdemeanor and is ground for suspension of the driver's license or registration, or both, of the person failing to make a required report.

"The new law does not apply to any judgments or civil actions arising out of accidents occurring before January 1, 1942.

"Since this description and explanation are so limited, if any questions should arise, I shall be glad to make an effort to answer them if you give me the opportunity."

INCREASE IN HEIGHT AND WEIGHT AMONG THE UNDERPRIVILEGED

SAMUEL C. KARLAN, M D, Dannemora, New York

A NUMBER of studies have been made which indicate that the general height and weight of the race is increasing. Mosher¹ noted that the height of Stanford University women students had increased 25 cm in thirty years. Gray² observed that American boys of American-born parents were more than 2 inches taller than the same type fifty years earlier. A study^{3,4} made at Harvard University which compared the heights of 1,166 fathers and 1,461 sons indicated that the mean height of the fathers was 68.6 inches while that of the sons was 70 inches. Chenoweth⁵ compared the heights and weights of college freshmen who had been admitted to the University of Cincinnati from 1916 to 1936 and noted that the men increased in height from 67.45 inches to 69.23 inches and in weight from 132.05 pounds to 141.79 pounds. He therefore concluded that mankind was steadily growing taller and attributed it to the higher standards of living, higher degree of health intelligence, decrease in communicable disease, and better nutrition.

Many investigations⁶ show that economic status and social position influence growth a great deal. Chenoweth also observed that the mean height of the students at the University of Cincinnati was slightly lower than that at Harvard and attributed it to the greater wealth and social position of the latter group. However, the studies mentioned above dealt almost entirely with the middle and upper classes from which the vast majority of college students are drawn. We therefore thought that it would be of scientific value to determine how the heights and weights varied in the lower classes of society. We could not find a more representative sample of the poorer elements and those with the lowest social position than the inmates of a state prison. Moreover, this material lent itself to investigations of this nature since we had reliable data as to height and weight in the records of the inmates.

A study was therefore made of the heights and weights of all the admissions to the Clinton State Prison from January 1, 1910, to October 1, 1940. These were all sorted with

respect to their year of birth so as to create age groups that passed through their period of growth at approximately the same time. The dates of birth varied from 1840 to 1923 but, since there were too few cases in some of these years, only the years 1871 to 1920 were used. We thus found 10,923 cases suitable for our investigation. The mean heights were then calculated for each five-year period. Because of the influence of age on weight, the cases for each year of birth were further divided into three age groups: 17 to 29 years, 30 to 39 years, and over 40 years according to their age on admission to prison. The mean weights were then calculated for each ten-year period. The average deviations and probable errors were derived for all the means. The results are given in Tables 1 and 2.

There was a difference in height of 1.4 inches between those born in 1871 to 1875 and those born in 1916 to 1920. Since this is thirteen times the probable error (a difference of twice the probable error being sufficient to make a result statistically significant), we must conclude that even the underprivileged are increasing in height. However, we must also note that the gain in height for a period of fifty years was equal only to the gain achieved by the Cincinnati students in twenty years and by the Harvard students in one generation. Moreover, while the Cincinnati students were about 0.7 to 1.2 inches shorter than the wealthier Harvard boys, the Clinton Prison inmates were about 1.5 inches shorter than the Cincinnati freshmen. We may therefore say that our rising standard of living, improved health conditions, and better nutrition have affected the poor and the underprivileged, as well as the other groups of society, although to a lesser extent.

A gain in weight was also found between the inmates born in 1871 to 1880 and those born in later years. The group that was 17 to 29 years of age showed an increase of 2.7 pounds (about six times the probable error) in thirty years. The group that was 30 to 39 years of age had an increase of 5.2 pounds in thirty years (about eight times the probable error). The group over 40 years of age on admission to prison showed a difference of

From the Clinton State Prison, Dannemora. Dr. Karlan is at the Dannemora State Hospital.

TABLE 1—HEIGHTS OF INMATES 1871-1920

Year of Birth	Number of Cases	Mean Height in Inches	Probable Error, Inches
1871-1875	370	66 3	±0 12
1876-1880	582	66 6	±0 09
1881-1885	976	66 6	±0 07
1886-1890	1422	66 3	±0 06
1891-1895	1721	66 5	±0 05
1896-1900	1728	66 7	±0 05
1901-1905	1495	67 0	±0 05
1906-1910	1232	67 3	±0 06
1911-1915	1017	67 6	±0 07
1916-1920	374	67 7	±0 11

TABLE 2—WEIGHTS OF INMATES 1871-1920

Year of Birth	Number of Cases	Mean Weight in Pounds	Probable Error
(a) 17-29 Years of Age on Admission			
1881-1890	1017	144 6	±0 4
1891-1900	2137	145 2	±0 3
1901-1910	1972	147 4	±0 3
1911-1920	1391	147 3	±0 4
(b) 30-39 Years of Age on Admission			
1871-1880	447	144 7	±0 7
1881-1890	867	149 6	±0 6
1891-1900	958	151 4	±0 6
1901-1910	758	149 0	±0 6
(c) Over 40 Years of Age on Admission			
1871-1880	505	151 5	±0 8
1881-1890	514	154 2	±0 8
1891-1900	360	157 6	±0 9

61 pounds (about six times the probable error) All these results are statistically significant, although they are all appreciably lower than the difference of 9 7 pounds shown by the Cincinnati students Incidentally, it may be noted that among the poor, as well as among the wealthy, weight tends to increase with age, since the group over 40 years

old was 7 to 10 pounds heavier than the group 17 to 29 years of age

Summary

1 Prison inmates born in 1916 to 1920 were 1 4 inches taller than those born in 1871 to 1875 and 2 7 to 6 1 pounds heavier

2 Even the poorer and underprivileged groups of society are improving in height and weight However, this improvement is not so high as that shown among the wealthier and more comfortable groups

3 It is likely that the increase in height and weight is due to better nutrition, higher standards of living, and better health conditions, all of which have improved appreciably even among the lower strata of society

Acknowledgment is hereby made to Dr Blakely R. Webster, Dr Walter M. Martin, and Mr Joseph Kalish for their kind cooperation

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Distribution of Sulfadiazine by the New York State Department of Health

Early in December the New York State Department of Health began the distribution of sulfadiazine throughout New York State, exclusive of New York City, to registered Doctors of Medicine and hospitals for the treatment of pneumococcal infections. As with sulfapyridine and sulfathiazole, state-issued sulfadiazine is intended only for those patients for whom purchase of this drug would be a hardship

The new drug, in packages of 60 tablets of 0.5 Gm each, may be obtained in the same manner and from the same laboratory supply stations as those furnishing the older compounds In compliance with the ruling of the State Board of Pharmacy, the actual signature of physicians requesting sulfonamide drugs is required, the printed request slip prepared by the Health Department is preferred, but a prescription or a letter signed by the physician will be acceptable

Sulfadiazine should not be used for the treatment of gonococcal infections, since experience indicates that it is not so effective in such cases as sulfathiazole or sulfapyridine Physicians are requested not to use state-supplied sulfadiazine for any infections other than pneumococcal, and they are urged to be careful not to leave in the home such tablets as may remain when cure has been effected, lest self-medication of other diseases and possible toxic reactions result

Diagnosis

CLINICOPATHOLOGICAL CONFERENCES

FOURTH MEDICAL DIVISION OF BELLEVUE HOSPITAL

History

The patient was a 66-year-old white man admitted on October 2, 1941, complaining of shortness of breath and swelling of the feet and ankles of three weeks' duration. It was difficult to obtain an adequate history due to the fact that there was marked language difficulty. It was known, however, that he had been treated at Bellevue Hospital about one and one-half years ago for congestive failure. He apparently had no further difficulties until three weeks previous to admission when he suffered shortness of breath and swelling of both feet and ankles. This gradually progressed in severity until about three days prior to admission when he said he suffered sharp pain in the lower right portion of his chest. Past history was essentially negative except for that noted above.

The patient was described as an elderly, acutely ill, cyanotic, dyspneic, and orthopneic white man. He appeared to be in considerable distress and there were signs of marked dehydration noted. On admission the temperature was 101.6 F, pulse (radial), 72, apex, 120, respirations, 36, and blood pressure, 170/115. An examination of the skull was negative. The pupils were equal and regular and reacted to light and accommodation, the extraocular movements were normal. The conjunctivae were injected and suffused with a foul discharge. The ears were essentially negative as was the nose. On examination of the mouth four carious teeth were all that remained. The breath was fetid, the tongue was coated and dry. The pharyngeal mucous membranes were moderately injected. The neck veins were described as distended, the thyroid was not palpable, and there was no palpable adenopathy. The thoracic cage was emphysematous in type and respiratory lag was noted on the right. Cutaneous hyperesthesia was described over the right side of the chest posteriorly. There was flatness at the right base on percussion and the breath sounds were diminished, but fine inspiratory crackling rales were heard as high as the sixth dorsal vertebra. The percussion note at the left base was considered to be dull and a few moist

rales were heard over this area. The heart was enlarged to the anterior axillary line in the fifth intercostal space. The point of maximal impulse was considered forceful and a systolic thrill was palpable over this area. A harsh, high-pitched systolic murmur was audible over the mitral area. Because of the rapid fibrillation the examiner could not be sure as to the presence of any other murmurs. A pulse deficit of approximately 40 was noted. There was voluntary abdominal spasm and no masses were felt at the time of this examination. The liver and spleen were apparently not enlarged and a rectal examination revealed no gross abnormalities. The genitalia were those of a normal man. There was 4 plus pitting edema of both legs up to the knees, the reflexes were physiologic.

The patient was digitalized on admission and put on pneumonia routine with sulfapyridine. A sputum specimen was purulent but not bloody. The fibrillation persisted in spite of digitalization at the very rapid rate noted on admission. The signs in the right lower lobe persisted as noted. After a period of five days, dehydration was still present and fluids up to 2,000 cc per day were continued. The temperature remained at the approximate level of 101.0 F in spite of adequate level of 97 mg blood sulfonamide level. On the fourth day the drug was changed to sulfathiazole, and this was continued until the seventh day when sodium sulfapyridine was administered intravenously. This was continued until the time of the patient's death. A chest tap was performed and 100 cc of thin bloody fluid was removed from the right side of the chest. The patient went progressively downhill and expired on the eighth hospital day.

Laboratory Findings — The urinalysis showed a specific gravity of 1.023, a trace of albumin, and one red blood cell per high-power field. The white blood count was 18,740 with 88 per cent polymorphonuclears and 12 per cent lymphocytes, the red blood cell count was 5,120,000 with 100 per cent hemoglobin. A sputum examination revealed type IV pneumococcus. The blood Wassermann reaction was negative. The blood non-

protein nitrogen on admission was 43, on the sixth day, 48. The blood sugar was 133, the blood chlorides ranged from 429 to 460. The blood sulfonamide levels were 9.7 mg on two occasions. The temperature until two days before death remained at approximately 101.0 F, on the seventh day it spiked to 103 F and rose similarly on the day of death. An electrocardiogram taken on the second day revealed a ventricular rate of 100 in the presence of auricular fibrillation. There was moderate left axis deviation, QRS complex, 0.08 second. There was depression of the R-T segment in leads I and II and a diphasic T wave in leads III and IV, with a deep Q in lead III, frequent premature ventricular contractions were present. The picture was that of marked myocardial damage.

Discussion

DR EMANUEL APPELBAUM. This patient presented two groups of signs and symptoms which may or may not have been closely related—namely, cardiac and pulmonary. With regard to the cardiac status, there was definite evidence of congestive heart failure associated with cardiac hypertrophy, dilatation, and auricular fibrillation. It was difficult to decide whether this was a case of hypertension with superimposed arteriosclerotic heart disease or an instance of chronic mitral valvular disease. The murmur over the mitral area was certainly a harsh one. It must also be borne in mind that occasionally we see large failing hearts that cannot be clearly defined pathologically. Our impression was that this was an instance of hypertensive and arteriosclerotic heart disease with perhaps some damage to the mitral valve.

With regard to the pulmonary features it should be noted that a diagnosis of pneumonia due to *Pneumococcus* type IV was made shortly after admission. When the patient did not respond to sulfonamides in the usual manner, it became necessary to investigate the cause of the therapeutic failure. Several possibilities had to be considered. First, the causative pneumococcus might have become sulfonamide-fast. There is experimental evidence to indicate that if an organism becomes resistant to one sulfonamide it is also resistant to all sulfonamides. Clinically, however, that does not necessarily hold true. Also it was possible that the pneumonia was an atypical one, due to a bacterial agent other than the pneumococcus, or perhaps of virus etiology. It is generally stated that these atypical pneumonias do not respond to sulfon-

amides. In our experience, however, we have on occasion observed such cases make a satisfactory response to sulfonamides. The possibility that the patient had a pulmonary neoplasm had to be considered. We have all seen cases of bronchogenic carcinoma masquerade as pneumonia. The finding of bloody fluid from the right pleural cavity lent some support to this idea. Another possibility to be considered was pulmonary congestion with edema which, not infrequently, simulates pneumonia. Finally, we had to consider the possibility of pulmonary embolic infarctions that are frequently mistaken for an atypical or bronchopneumonia, especially when the infarcts are multiple—and, as a rule, they are multiple. This type of pulmonary infarction is caused by moderate-sized emboli occluding secondary or tertiary pulmonary artery branches. The small emboli, as a rule, present no symptoms, and a large embolus occluding the pulmonary artery or one of its major branches produces a severe clinical picture with dyspnea, cyanosis, substernal pain, collapse and, frequently, death.

It is important to bear in mind the relative frequency of pulmonary infarction in necropsy material both among cardiac and noncardiac patients, but particularly the former, the estimated incidence of this complication being 8 per cent. The majority of pulmonary infarcts complicates heart disease, such as coronary occlusion with myocardial infarction, hypertensive heart disease, rheumatic hearts usually with mitral stenosis and auricular fibrillation, subacute bacterial endocarditis, and a group of patients with cardiac enlargement with auricular fibrillation or flutter and no other abnormality. Most of the patients with pulmonary infarction are in congestive failure, which masks the infarct and makes the diagnosis difficult. Important clues to diagnosis may be marked dyspnea, pleuritic pain, persistent fever and tachycardia, recurrent hemoptysis, and jaundice. When a patient presents these symptoms, which are difficult to evaluate, the physician must think not only of pulmonary infection but also of pulmonary infarction.

It is also important to remember that pulmonary infarction in noncardiac patients may simulate heart disease by producing cor pulmonale or by producing rales and edema suggesting left ventricular failure. One must bear in mind, also, that pulmonary infarcts may be complicated by pneumonia or may be infected. The infection in such instances may lead to suppurative pneumonitis.

and may extend to the pleura, producing a suppurative pleuritis. Various streptococci or pneumococci are, as a rule, the organisms that cause such an infection, and they are derived from the respiratory tract, disseminating in a bronchogenic manner.

The source of pulmonary embolism may be a thrombus or vegetation from the heart, but the great preponderance of these emboli are derived from the veins of the pelvis and of the leg, most commonly the latter, especially in the region of the popliteal vein. In this connection I should like to mention the not infrequent cases of septic abortion with embolization to the lungs which masquerade as a pneumonia.

I have discussed this problem somewhat in detail because medical men frequently overlook this important complication of heart disease. In summary, we had a patient with marked congestive heart failure who also had pulmonary signs suggestive of pneumonia. The patient did not respond to sulfonamides. Various possibilities for the patient's failure to respond were suggested. Personally, I felt that the patient did not have pneumonia but had multiple pulmonary embolic infarcts.

DR ARNOLD KOFFLER: There are several features that I should like to discuss in this case, principally in relation to the pulmonary findings. The failure to respond to sulfonamides within a reasonable period of time—i.e., forty-eight hours—is presumptive evidence that the process was not pneumonic. Other features of this case were the presence of pain of three days' duration and a definite hyperesthesia of the chest wall. This combination is not at all uncommon in pulmonary infarction and the presence of bloody fluid strongly suggests this diagnosis. In addition, there is no doubt that this patient had hypertensive heart disease with auricular fibrillation. The possible foci of embolization are naturally two in number: first, mural thrombus and, second, a peripheral vein. Either one is a possibility.

DR MAX TRUBEK: The cardiac enlargement was due to hypertensive disease. I do not feel that this patient had pneumonia in spite of the finding of pneumococci in the sputum, but there was probably pulmonary edema with a hypostatic pneumonia. Statistics for many years have shown that the occurrence of pulmonary infarction is far more frequent than that of lobar pneumonia in patients in cardiac failure who present physical findings of consolidation.

DR MENASCH KALKSTEIN: Among the

remaining problems with which pneumonia study is concerned is that of the cases that do not respond to modern therapy. Chemotherapy, as we know, has been extremely effective in reducing the mortality from this disease. There remains, however, a not inconsiderable mortality, in addition to which some cases, in spite of recovery, do not respond in the fashion that is considered typical. We are now analyzing the accumulated cases of the pneumonia study conducted on the First, Second, and Fourth divisions of Bellevue Hospital during the past three years in an attempt to determine the causes of failure of modern therapy. The incomplete data suggests the following tabulation:

I Misdiagnosis

A Suppurative lung disease

- 1 Lung abscess
- 2 Bronchiectasis
- 3 Endobronchial obstruction with suppurative infection, including bronchogenic carcinoma

B Pulmonary tuberculosis including pleurisy with effusion

C Pulmonary infarction with or without infection

D Cardiac failure, acute localized pulmonary engorgement may closely resemble pneumonia, diffuse congestion may resemble bronchopneumonia

II Complications of Pneumonia

These include empyema, bacterial endocarditis, meningitis. Serum sickness may be a complication of treatment.

III Associated Conditions

A Renal insufficiency

B Pneumonia with congestive heart failure

C Diabetes mellitus

D Associated, unrelated infection

IV Resistant Organisms

A Rarely pneumococcus. Pneumococcus resistance to sulfonamides may be induced and this strain remain pathogenic. Resistant strains develop in the course of pneumococcal endocarditis.

B "So-called virus" pneumonia. This usually does not respond to sulfonamides but runs a relatively benign course.

C Other pyogenic organisms, including Staphylococcus aureus hemolyticus and Bacillus Friedländer. The response of these organisms is variable.

D Streptococcus viridans has been shown to be capable of producing a severe pulmonary infection with

little or no response to sulfonamides

E Psittacosis, typhoid fever

V Drug Fever

The disease may be cured by withdrawing the drug. Sulfathiazole produces drug fever most often. The possibility of this condition must not be overlooked, since its recognition is usually followed by cure, while serious results follow the continued administration of the drug.

VI Low Blood Sulfonamide Level

This may be inadequate as a result of improper administration, vomiting, failure to absorb, rapid excretion, or high acetylation. It is, therefore, incumbent on the clinician to check these levels frequently.

VII Indeterminate

Unfortunately, while this group is small, the cause of failure may not be apparent. Overwhelming infection with a highly virulent organism or lessened resistance with poor humoral response on the part of the host—especially with pregnancy, chronic alcoholism, or in late cases—accounts for some of these failures. It may be that in this group serum would be of added value.

Pneumonia adequately treated with chemotherapy before the fourth day of the disease in the absence of complicating factors should result in almost 100-per cent cure. Where the response is absent or slow there is probably an underlying cause.

Pathology

DR MAX-WILHELM JOHANNSEN. The body was that of a senile white man. There was no edema, clubbing, cyanosis, or jaundice. On opening the left pleural cavity, it was found to contain a moderate amount of clear straw colored fluid. The right pleural cavity contained a moderate amount of blood-tinged fluid which was divided into loculated areas by extensive thick, soft adhesions over the middle and lower lobes. The right lung was covered over the middle and lower lobes with a thick, soft, fibrinous yellow membrane that was easily stripped, revealing a lower lobe of a uniformly deep red color and increased density. The lung was noncrepitant and cut with greatly increased resistance. The cut surface was of smooth, deep red, homogeneous appearance. A similar area 4 cm in diameter was found at the lateral part of the right middle lobe. The right upper lobe showed decreased density, coarse creptitation, and decreased resistance to section, and on the cut surface the alveolar structure was unusually prominent. The left

lower lobe presented anteriorly, near the base, a roughened yellowish area overlying an elevated, firm, deep red area which, on section, resembled the tissue of the right lower lobe. The remainder of the left lower lobe was reddish, somewhat dense, of diminished creptitation, and of increased resistance on section, and reddish fluid could be expressed from the cut surface. The left upper lobe resembled the right upper. No areas of infiltration could be felt. On dissection of the right pulmonary artery the main branch leading to the right lower lobe was found to contain a large shiny blood clot, red-gray in color, which was loosely adherent to the vessel walls. A similar clot was found supplying the area of consolidation described in the right middle lobe, also, an adherent embolus was found in the artery supplying the consolidated area in the left lower lobe. The bronchi contained throughout a thick, brown, mucoid material that was difficult to scrape from the wall. The mucosa was everywhere thick, boggy, and injected.

The veins of the right upper and lower extremities were dissected, and organized and organizing thrombi were found in the median cubital and greater saphenous veins. These thrombi were prolonged beyond the area of excision. No gross evidence of canalization was seen.

The heart showed, except for hypertrophy and dilatation, no abnormal findings. The liver and spleen showed evidence of chronic passive congestion and there was some ascites.

The microscopic findings in this case substantiated the gross findings.

There is little to add to the obvious sequence of events in this case. We were fortunate enough to be able to find a well-organized thrombus in the greater saphenous vein of the right leg, which may very well have been the source from which embolization took place. The thrombi encountered in the antecubital vein were fresh and probably the result of intravenous treatment. The question of whether pulmonary infarction does occur in the absence of left-sided heart failure is still open to debate, and Dr Von Glahn, for instance, believes you can get infarction in a patient who has no evidence of pulmonary congestion.

Anatomic Diagnosis

Thrombosis of greater saphenous vein with emboli to pulmonary arteries

Pulmonary infarction of right middle lobe,
 right lower lobe, left lower lobe
 Hemorrhagic pleural effusion, right
 Pleural effusion, left
 Fibrinous pleuritis, bilateral
 Emphysema, right upper lobe, left upper
 lobe
 Hypostatic congestion, left lower lobe
 Mucopurulent bronchitis
 Left ventricular hypertrophy and general-
 ized cardiac dilatation
 Chronic passive congestion of liver and
 spleen

Polypsis of sigmoid colon and bladder
 Ascites (slight)

DR. EMANUEL APPELBAUM It becomes obvious that not every case that is diagnosed as pneumonia is necessarily pneumonia. Ordinarily, the diagnosis of pneumonia presents no difficulties. But, there are occasions when the clinician is faced with a problem of differential diagnosis. This is particularly true when the patient fails to respond to sulfonamides. The possibilities discussed above must then be carefully considered and weighed before arriving at a definite conclusion.

"EDITORIAL STEW"

That editors are doing their bit on the subject of nutrition cannot be denied, for apparently no publication can get to press these days without its vitamins. Proof that the printed word is getting around is the recent question of a twelve-year-old "Doctor, when was Nutrition discovered?"*

It was, therefore, surprising—and puzzling—to flip through the September issue of *The Internist* without coming across a single mention of a calorie. But our anxious moment was due to haste alone. On second look we spotted the "stew" and found it so palatable that it is here with warmed over and served a second time.

"Editing and publishing a magazine is as easy as baking a cake. Take a couple of articles add a generous dose of features, and flavor with some illustrations. Arrange these in a suitable order and send to the printer. Allow to simmer for several days, after which serve hot."

"Cooking up *The Internist* is as easy as that—from your point of view. But ask a chef what goes into the making of a tasty dish. He'll tell you that the oven does the work of cooking, but the important part of the job comes before the stove is hot. He will stress the quality of the ingredients which go into his food, insisting only on the best if he wants a first-class job. He will guarantee to paralyze your palate if you shop according to his orders."

"Well, the kitchen of *The Internist* feels the same way. Do our shopping for us and tell us what you want. We'll cook up the meal."

* The question was asked of Dr. Burdge P. MacLean of Suffolk County.

OLD AGE

A symposium on old age was presented at The New York Academy of Medicine in 1928 and won an editorial in the *New York Times* of October 3 that year. The doctors decided that they could not prevent old age. Dr. George E. Vincent asked "Can an average man or woman of 65 or 80 hope to be fairly fit, reasonably alert, and of some use to the community, or is it only the exceptional person who may entertain that hope and reach that standard?" He also said "Doctors ought to be like the mechanics who take contracts to keep clocks going and on time rather than emergency men to be summoned when timepieces stop or are too fast or too slow." In the *New York Times* of October 3, 1928, it was said that Dr. Solomon Strouse had told the Academy that the kind or amount of food a person eats had little or nothing to do with his or her attainment of long life. Obviously, the doctor did not think people dug their graves with their teeth. He cited case histories to show that, while many abstemious persons reached a ripe old age, many others who restricted themselves in no way whatsoever also achieved that goal and enjoyed life to the end. He said doctors disagreed about diet anyway (he was then associate professor of medicine at the University of Chicago) and each individual must determine his own best ration. He had found comparatively few examples of gluttony that caused real harm and suggested that doctors would be wise to make as few changes in the diet of old folks well or sick, as possible. At the same meeting Dr. Russell L. Cecil remarked that "the best friends of the elderly arthritic are rest, heat, and aspirin."—*Medical Record*

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION TO MEET

The nineteenth annual meeting of the American Orthopsychiatric Association, an organization for the study and treatment of behavior and its disorders, will be held at the Hotel Statler Detroit, on February 19, 20, and 21, 1942.

Copies of the preliminary program will be sent upon request to the chairman of the publicity committee, Dr. Helen P. Langer, Vassar College, Poughkeepsie, New York. A registration fee will be charged for nonmembers.

Abstracts of Proceedings

of the

NEW YORK PATHOLOGICAL SOCIETY

REGULAR MEETING, OCTOBER 30, 1941

DR JEAN OLIVER, *President*

DR JOHN M PEARCE, *Secretary*

The Pathology of Diabetes Mellitus Dr Shields Warren (*by invitation*), *Boston*

The pathology of diabetes mellitus is partly well understood and partly still confused. The lesions of the islands of Langerhans, particularly hyalinization and fibrosis, are adequate to explain some cases of the disease. Their experimental production in dogs and cats by anterior pituitary extract, apparently following the occurrence of hydropic degeneration of the insular cells, suggests the reality of the assumed relationship between the pituitary gland and the pancreas. Yet, the mechanism of production of hyalinization of the islands is as yet unknown. The occurrence of amyloid and para-amyloid reactions may be significant. Thus far, the significance of rather striking hyaline deposition in some functioning adenomas and carcinomas of the islands has not been determined.

In certain cases we have no morphologic evidence of abnormality in either pancreas or pituitary, and yet the type of disease shown by such patients in life is not distinctive.

Owing to the high diffusibility of sugar in the tissues, glycogen is our only help in the morphologic study of carbohydrate metabolism. Its characteristic storage and depletion in the diabetic patient have long been known, but even now we have no answer as to why the liver cell nuclei in the diabetic, and sometimes in the nondiabetic, patient become distended with glycogen.

Much interest has been aroused recently in the renal changes reported by Kimmelstiel and recently clearly presented by Allen. The renal deposition of hyaline material, while not specific to the diabetic process, is far more common in diabetic patients. Its occurrence is not restricted to cases of diabetes with edema. In my own series it has not been so frequent as in Allen's series, occurring in under 20 per cent of those over 40 years of age. The hyaline may be related to

that seen in the islands of Langerhans. When present, the lesion may be regarded as presumptive evidence of the existence of diabetes.

The chief problem of the diabetic patient is still arteriosclerosis, and the vessels of the leg and heart are still the most vulnerable. The lesion is typically atheromatous in type, not distinctive, but its age incidence and distribution are fairly characteristic for the diabetic patient.

Discussion

DR ARTHUR C ALLEN. I want to state at the outset in all genuineness that there are many pathologists here who are more adequately equipped than I to discuss a paper on the pathology of diabetes or any other of a variety of papers which Dr Warren might have chosen to present before this Society. But this much I am sure of: he has rendered a real service in his compilation and evaluation in the past few years of the facts of the pathology of a disease whose morbid anatomy, it seems to me, is uniquely difficult to set down in clear-cut terms. This contribution, I think, is being increasingly appreciated, because we are currently witnessing a wave of physiologic research in diabetes which parallels that of the early 1920's and which is of spectacular magnitude and of concern to the pathologist, as well as the physiologist. The fundamental theories of the mechanism of diabetes which we were taught are being seriously challenged. For example, the concept that the diabetic patient is unable to utilize sugar adequately, the concept that ketone bodies are formed because of this inadequate utilization of sugar, and the concept that the pancreas is the key organ in the diabetic, all of these are being threatened with major modifications. There is much impressive evidence—contributed in large

measure by Soskin, Mirsky, and Chaikoff—which points to the liver as the key organ and places the difficulty of the diabetic not so much in his inability to use sugar but in his overproduction of sugar and ketone bodies by a prodigal liver. The effect of anterior pituitary extract in producing a temporary or permanent diabetes in laboratory animals is another remarkable advance. A permanent diabetic state can be produced in these animals in from two weeks to two months, depending on the size of the dose. With the use of this extract, certain changes are seen in the islands and in other organs which remain to be studied by the pathologist. Incidentally, I may be wrong but I believe that partly on the basis of the diabetogenic action of anterior pituitary extract in insulin-treated depancreatized animals it is presumed that the hypophyseal hormone acts not directly on the pancreatic islets but as an antagonist to insulin. It has been shown by Best and his associates and by others that this diabetic state and the changes in the pancreas of the animals so rendered by anterior pituitary extract may be influenced favorably by certain factors—namely, the administration of insulin, high fat diet and low carbohydrate diet, and fasting—and that these changes may be influenced unfavorably by a high carbohydrate diet. And that brings us to the point raised by Haist, Campbell, and Best that perhaps we have in these facts a basis for hope, a provocative hope, indeed, for the prevention of diabetes in children who have a hereditary predisposition thereto.

As far as the kidney is concerned, some five years ago Kimmelstiel and Wilson described a peculiar lesion of the glomerulus of the kidney in association with diabetes mellitus. This was an alert observation. I suppose it is surprising that this correlation has been overlooked for decades. However, this situation is by no means unique, the juxtaglomerular apparatus of Goormaghtigh and the pathology of lupus erythematosus, which is being clarified at the present day, are additional examples of structures and lesions whose significance is just beginning to be understood. Dr Siegal, I think very astutely, became aware of the clinical entity even before he was made aware of the pathologic counterpart. At his bidding Dr Klemperer with his characteristic and inspiring receptivity to new thoughts—I know this embarrasses him, but that is how I feel toward him—asked us to see what the lesion had to offer. There are several points about it

which might be commented upon. First, there is the matter of frequency. One does get a bit of a discrepancy in the incidence reported by different observers of even a less equivocal lesion than the intramural glomerulosclerosis of the kidney, but I should like to emphasize that we have included among our positives—and perhaps Dr Warren has, too—kidneys in which one or two glomeruli were involved by a single lesion, the lesions, when they are found, being characteristic even though only a single lesion is present.

The question of specificity is a curious one. If you comb the literature and the verbal reports on the subject, you find workers who run the whole gamut from those who insist the lesion does not occur in nondiabetic patients—and there is plenty of evidence for that in the published reports—to the rare investigator who feels that the lesion occurs in as high a proportion of nondiabetic as in diabetic patients. That is a remarkable state of affairs, and the most disconcerting part of it is that those on the other (nonspecific) side of the range are competent observers for whose ability we, of course, have a genuine respect. That makes the problem all the more baffling. I do not know the answer, but I have this suggestion to make. In Kimmelstiel's original description of the lesion it was reported as simply an advanced stage of senile, as he called it, senile glomerulosclerosis. He regarded it as differing in no qualitative way from the ordinary aging process. We do not happen to agree with this, because, for one of many reasons, one should expect to find these lesions in great abundance, especially in the most senile, severely contracted kidneys. This is not compatible with what we do find, but you can understand that if pathologists regard the lesion as qualitatively similar to senile glomerulosclerosis then the range of the lesion is widened considerably. We have a definite concept of what the lesion is and, if I were to give a series of slides to another pathologist with a morphologic impression of the lesion similar to our own, as was done (New York Pathological Society, New York State J Med 41:1482, 1941), I think we should find about the same percentage of lesions, because we have a narrow and clear-cut conceptual scheme of what the hyaline is, where it is placed, and how the vessels around it are constituted.

The question of the nature of the hyaline is again interesting. We, of course, wondered whether the hyaline within the glomerulus was identical with the hyaline in the islands

Abstracts of Proceedings

of the

NEW YORK PATHOLOGICAL SOCIETY

REGULAR MEETING, OCTOBER 30, 1941

DR JEAN OLIVER, *President*

DR JOHN M PEARCE, *Secretary*

The Pathology of Diabetes Mellitus Dr Shields Warren (*by invitation*), Boston

The pathology of diabetes mellitus is partly well understood and partly still confused. The lesions of the islands of Langerhans, particularly hyalinization and fibrosis, are adequate to explain some cases of the disease. Their experimental production in dogs and cats by anterior pituitary extract, apparently following the occurrence of hydropic degeneration of the insular cells, suggests the reality of the assumed relationship between the pituitary gland and the pancreas. Yet, the mechanism of production of hyalinization of the islands is as yet unknown. The occurrence of amyloid and para-amyloid reactions may be significant. Thus far, the significance of rather striking hyaline deposition in some functioning adenomas and carcinomas of the islands has not been determined.

In certain cases we have no morphologic evidence of abnormality in either pancreas or pituitary, and yet the type of disease shown by such patients in life is not distinctive.

Owing to the high diffusibility of sugar in the tissues, glycogen is our only help in the morphologic study of carbohydrate metabolism. Its characteristic storage and depletion in the diabetic patient have long been known, but even now we have no answer as to why the liver cell nuclei in the diabetic, and sometimes in the nondiabetic, patient become distended with glycogen.

Much interest has been aroused recently in the renal changes reported by Kimmelstiel and recently clearly presented by Allen. The renal deposition of hyaline material, while not specific to the diabetic process, is far more common in diabetic patients. Its occurrence is not restricted to cases of diabetes with edema. In my own series it has not been so frequent as in Allen's series, occurring in under 20 per cent of those over 40 years of age. The hyaline may be related to

that seen in the islands of Langerhans. When present, the lesion may be regarded as presumptive evidence of the existence of diabetes.

The chief problem of the diabetic patient is still arteriosclerosis, and the vessels of the leg and heart are still the most vulnerable. The lesion is typically atheromatous in type, not distinctive, but its age incidence and distribution are fairly characteristic for the diabetic patient.

Discussion

DR ARTHUR C ALLEN. I want to state at the outset in all genuineness that there are many pathologists here who are more adequately equipped than I to discuss a paper on the pathology of diabetes or any other of a variety of papers which Dr Warren might have chosen to present before this Society. But this much I am sure of: he has rendered a real service in his compilation and evaluation in the past few years of the facts of the pathology of a disease whose morbid anatomy, it seems to me, is uniquely difficult to set down in clear-cut terms. This contribution, I think, is being increasingly appreciated, because we are currently witnessing a wave of physiologic research in diabetes which parallels that of the early 1920's and which is of spectacular magnitude and of concern to the pathologist, as well as the physiologist. The fundamental theories of the mechanism of diabetes which we were taught are being seriously challenged. For example, the concept that the diabetic patient is unable to utilize sugar adequately, the concept that ketone bodies are formed because of this inadequate utilization of sugar, and the concept that the pancreas is the key organ in the diabetic, all of these are being threatened with major modifications. There is much impressive evidence—contributed in large

40 When we corrected the incidence for the patients over 40, the relative incidence by sex remained the same, the overall incidence rose to 18 per cent. The highest incidence remained in women, in the corrected groups, at 23 per cent.

Having found these cases, we graded them according to the severity and extent of the lesion. Four of them were most severe and, taking an arbitrary designation, we called them 3 plus. All 4 of the 3 plus cases showed the complete clinical syndrome. It was interesting that among the 4 there were 2 that had been previously diagnosed as having amyloid disease. This brings me to the point that in the differential microscopic diagnosis the resemblance to amyloid is striking in preparations stained with hematoxylin and eosin. But there can be no doubt on differential staining that the lesions in the glomeruli are actually hyaline connective tissue, they stain like mature hyaline collagen.

The other cases fell into groups of 2 plus and 1 plus, and there was a small group with focal lesions in which a single glomerulus in a low-power field might show one of these hyaline spheres. These cases were found among individuals who did or did not have hypertension and who had diabetes of varying severity, some so slight as to require no management other than diet, some had diabetes so severely as to require 40 to 60 units of insulin per day.

In the 12 positive cases that were analyzed in detail, we could not find a correlation with the clinical severity of the diabetes, the duration of the diabetes, or its management. I mention this simply to emphasize the point I made first—that diabetes mellitus in these patients may be a waxing and waning disorder of a nature unrelated to any disturbance in renal function. Some of the patients presented themselves at the hospital with complications related to the disease—e.g., gangrene of the extremities in 2 patients, cardiac failure in 2 additional patients, pyelonephritis was present in several, and frank pus in the urine was encountered without particular reference to the grade of the special glomerular lesion. There was one thing that all had in common, a finding that I hope to hear Dr. Warren or Dr. Allen comment upon perhaps a little later. They all had arteriosclerosis, whether they had an isolated glomerular lesion or a universal glomerular lesion. And this was universal, even in the mildest cases. This had raised

the question in my mind whether this is a prerequisite to the development of this peculiar intercapillary glomerular body.

It was interesting to review the matter of gross diagnosis in these patients. As the clinicians have become aware of the disease, several patients have come to autopsy with the clinical diagnosis of intercapillary glomerulosclerosis. They were patients who had the syndrome of diabetes, hypertension, and the "nephrotic" state. In 2 patients the diagnosis was confirmed at autopsy, but only on microscopic examination. I do not know how to make the gross diagnosis of this disorder. Some patients had normal kidneys on gross inspection, some had arteriosclerotic scars. Most exhibited the same appearance as the kidneys in moderately advanced arteriolar nephrosclerosis. Some had moderate amounts of lipid material deposited in the parenchyma.

While the gross diagnosis is unattainable, the microscopic diagnosis is not so difficult, particularly in the mildest cases, but even in the severe cases it is possible to find glomeruli scattered about which show this peculiar hyaline sphere to be unrelated to the other changes in the glomerulus. But when one encounters a glomerulus that has been replaced by connective tissue, I do not see how you can tell the process by which it has reached this stage. It seems likely that the end-stage lesion will often be the source of dispute among observers. It is also likely that a variety of lesions in the glomerulus might produce a hyaline collagenous deposition. I am reminded of the Löblich lesion, which is quite distinctive when it is found attached to the parietal capsule, but it may be an isolated lesion in the glomerulus. Finally, one may find necrotizing lesions like those seen in malignant hypertension, thrombosis, or necrosis of the capillary loops associated with necrosis of afferent arteriolar walls with intramural hemorrhage. In this connection 3 of the 4 severe cases we found had microscopic hematuria in their urine specimens.

I believe that at this stage in the development of a new subject it is wise to wait and see about the specificity of these lesions in the diabetic subject. They certainly stimulate interest anew in the possible morphologic changes in this disorder. For my own part, I think Dr. Warren has conspicuously served to stimulate all of us to re-examine the widespread morphologic problems of a disease in which, although there is an effective thera-

of Langerhans, and we do not think it is quite the same. For example, we have derived a good deal of information from the study of this lesion with silver stains, the capriciousness of which I am well aware. We find there is a marked argyrophilia in the renal lesions, we do not find a corresponding argyrophilia in the hyalinized islands of Langerhans.

I think perhaps the most intriguing part of the lesion is the sclerosis of the efferent arteriole. We know the pressor substance in hypertension is assumed to act in great measure by constriction of the efferent arteriole (Merrill, A., Williams, J. R., Jr., and Harrison, T. R. *Am. J. M. Sc.* 196: 240, 1938; Corcoran, A., and Page, I. H. *Am. J. Phys.* 126: 354, 1939), thereby raising the intraglomerular pressure and modifying the glomerular dynamics. We know, too, that there is a higher incidence of hypertension among diabetic patients than among other people of a corresponding age group. Here we have the efferent arterioles frequently organically narrowed, especially in association with the intramural glomerulosclerosis, and we wonder about the relationship. In addition, it is pointed out in the literature (McGregor, L. *Am. J. Path.* 6: 347, 1930) that the renal efferent arterioles of ordinary hypertensives are morphologically normal. In chronic glomerulonephritis this vessel seems also to be unchanged, as shown by the remarkable plastic studies of Dr. Jean Oliver and his associates (Oliver, J. R., and Lund, E. M. *Arch. Path.* 15: 755, 1933). This finding in itself would constitute a significant difference between some of the diabetic and the nondiabetic kidneys. Because of the influence of the efferent arteriole on glomerular dynamics, we should be much interested in clearance studies of these patients.

What I am trying to say, in brief, is that I can hardly subscribe to the view of those who feel that the future of pathology lies in simply extending the answers, the already well-formulated answers, to additional decimal places. I do not believe that is true for a whole host of diseases, I am certain that it does not hold for diabetes mellitus.

DR. IRVING GRAEF. It is a pleasure to salute the masterly presentation that Dr. Warren has given us of the problems and some of the facts about the lesions we may see in diabetes mellitus. I do not think we can make any summary conclusions about work to be done. I think it is fair to say, however, that diabetes mellitus remains a clinical diagnosis and that it is a disease of metabolism

in which the morphologic substrate has yet to be identified. I think that we would all do well to remember, certainly as pathologists, that diabetes mellitus as a clinical disease waxes and wanes. Experience with patients may represent only the terminal phase of a physiologic disorder that itself may be years in duration or actually only hours in duration. And, here again, calling all persons who have glucose or reducing bodies in their urine and a large quantity of glucose in their blood diabetic patients may mislead us when it comes to interpreting their morphologic findings. It can hardly be safe to compare those individuals who have been known to have this disorder for a long period with individuals who merely have a premortal hyperglycemia or glycosuria, perhaps even clinically unknown.

When Kimmelstiel and Wilson's lesion first came to attention, many interested in morphologic pathology were intrigued by the notion that this disorder might be a new form of glomerular alteration. But opinion was withheld, and no consensus has developed yet that this disorder, as such, is primarily related to the disturbance of carbohydrate metabolism, which was associated with the disorder as described by Kimmelstiel and Wilson in all but one of their cases. Since then, a number of persons have surveyed their material and their experience, and I think the opinion is growing (and Dr. Warren has given voice to this opinion) that this peculiar glomerular lesion is found most frequently in persons who have had clinical diabetes mellitus. The occasional patient who lacks the clinical record of diabetes mellitus may be the individual who has had it and has spontaneously become rid of it or who comes to autopsy at a time when its clinical manifestations are in abeyance. Its occurrence in hypertension is extremely interesting. A few cases are accumulating in different series in nonhypertensive patients.

I thought it might be interesting to tell you what a brief survey has shown in 75 unselected cases of diabetes mellitus which came to necropsy at Bellevue Hospital. These patients consisted of 36 men and 39 women ranging in age from 17 to 85 years. The incidence in the men was one-half of that in the women, there being 4 cases among the men and 8 cases among the women. Together they made an overall incidence of 16 per cent. We noticed that the incidence of positive cases of intercapillary glomerulosclerosis—or intramural glomerulosclerosis, as Dr. Allen likes to call it—was limited to patients over

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the question in my mind whether this is a prerequisite to the development of this peculiar intercapillary glomerular body.

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peutic agent, the pathogenesis is still a challenge

DR SHIELDS WARREN I appreciate very much the interest in diabetes that has been shown by all of you and particularly by those of you who have taken part in the discussion

The problem, as you can see from what I have said and from what has been presented by others, is as yet far from solved, although we are steadily getting closer and closer to the fundamental truths that will help us to a

proper solution, I hope, of the entire problem of disturbed carbohydrate metabolism. One particular thing I should like to stress a little more and that is the point that Dr Graef clearly brought out—diabetes is a disease that shows remarkable fluctuations in its severity and a disease that may at times be unrecognized clinically and may show little relationship between the pathologic picture it presents and the severity it shows in the sick individual who ultimately comes to the postmortem

COMPLAINT TO THE AMERICAN MEDICAL ASSOCIATION*

(Concerning their members' unfair monopoly of best selling autobiographies and other fiction)

Of all God's creatures here below

Whose feats confound the skeptic

I most admire the Medico,

That hero antiseptic

He has my heart, he has my hand,

He has my utmost loyalties

(He also has my tonsils and

A lien on my royalties)

For from the time he doth begin

His sacred tryst with medicine,

How noble, he! How never-tiring!

Not rain, nor heat, nor maids admiring,

Nor bills unpaid, nor farmers' hounds

Can stay him from his sleepless rounds

More fleet than winners of the Bendix,

He hastens to the burst appendix,

Or breasts the blizzard cold and shivery

To make some rural free delivery

Or if to ampler orbits whirled

(As fate will sometimes toss us),

How he bestrides this narrow world,

A medical Colossus!

Perhaps, his kit upon his back,

He dares the jungle thickets,

Intent upon the fevered track

Of yaws or mumps or rickets

The chum of kings, the friend of presidents,

He makes the earth his private residence,

One day prescribing pills and pickups

To cure an emperor of hiccups,

The next in stricken cities stranded,

Combatting scourges single-handed,

At peril of life, at risk of limb

Yet do such deeds suffice for him?

No, no. In secret all the while

He's sought a Literary Style

The pen (so springs the constant hope

Of all devout physicians)

Is mightier than the stethoscope

And runs to more editions

So while he's waged bacillic wars,

Or sewed a clever suture,

His mind has hummed with metaphors

Laid up against the future

Amid the knives and sterile gauzes

He's dreamt of modifying clauses,

And never gone to bed so late

His diary wasn't up to date,

As if he'd sworn an oath to follow

Both Harper Brothers and Apollo

Oh, more than Einstein, more than Edison

I do admire the man of Medison

He has my hand, he has my note,

He has those X-rays of my throat,

But is it fair he should lay claim to

The overcrowded writing game, too?

I eye askance those dubious laurels

Where are his ethics? Where his morals?

In what brave school did he matriculate

That he should be so damned articulate?

And where's the seal to show his betters

He's certified a Man of Letters?

Professional sirs, I gravely doubt,

In any really nice sense,

Your boys should practice thus without

Their literary license

—Phyllis McGinley

* Originally published in *The New Yorker*, reprinted in "A Pocketful of Wey," by Deull Sloan and Pearce and reprinted here by the kind special permission of the author

NEW TB PROJECT

The x-raying of all patients and employees of New York State hospitals for the insane and schools for the feeble-minded is now in progress, according to Dr. William J. Tiffany, state commissioner of mental hygiene. This is a joint

undertaking of the State Department of Health and Mental Hygiene, under a legislative appropriation of \$45,000, and is but one of several projects of the No-Tuberculosis-After-1960 campaign

TUBERCULOSIS ABSTRACTS

A Review for Physicians

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

Vol. XIV

November, 1941

No 11

MORTALITY from tuberculosis has been quartered in forty years. This fact, however, reveals no accurate information regarding prevailing infection and morbidity rates. That they are less is too logical a deduction to be doubted, but their decline relative to that in mortality has been a matter of conjecture. The following report on autopsy findings throws valuable light on this question, especially since accurate studies extending over the past half century furnish the needed controls for comparison.

PREVAILING TUBERCULOSIS INFECTION RATE

In 1900 Naegeli published a careful report of 508 autopsies. Of the adults over 18 years of age 93 per cent showed healed, inactive or active tuberculous lesions in the lungs. Only 17 per cent of those under 18 yielded positive findings. Other investigators substantiated these findings, and in the early years of this century the belief was prevalent that all adults had at some time suffered an invasion by the tubercle bacillus.

Opie, as late as 1917, found positive evidence of infection in all of 50 autopsies on adults and in nearly 24 per cent of a group of 93 children, the latter showing a far higher figure in the adolescent years. It was these findings that led Opie to remark: "Almost all human beings are spontaneously 'vaccinated' with tuberculosis before they reach adult life."

In 1922 Wason reported positive findings in 82 per cent of his autopsies, and in 1925 Lambert and de Castro Filho reported a rate of 72.8 per cent in a large series from Brazil. As late as 1927 Todd still found evidence of tuberculous infection in 69 per cent of autopsies done in Edinburgh on patients who had died of some cause other than tuberculosis. Such evidence indicates rather clearly that the decline in infection rate has not kept pace with mortality from this disease.

The present study was carried on at the Washington County Hospital in Hagerstown from September, 1938, to August, 1940, all autopsies being performed by the same pathologist. There were 176 autopsies during this period, which represented 45 per cent of the deaths that occurred. Eleven of these were rejected because they were not complete postmortems, leaving 165 which are included in this report. Cases of active tuberculosis are not admitted to the hospital. The population of Washington County is semirural and most of the patients were long residents, from all classes of society and of the white race (only four negro adults in the group).

Thirty-two of the 165 necropsies were done on children and 133 on adults. For the whole group positive findings were recorded in 65 or 39.4 per cent, which is just half of Naegeli's findings—79.9 per cent when he included all ages.

Considering only the adult group of 133 cases, the positive evidence of infection yielded 47.4 per cent, again strikingly near one-half the number of adults found to be infected by the earlier researches of Naegeli, Burkhardt, Opie, and others. In this series there were 5 cases where in-

fection was suspected but could not be proved pathologically. If these are included, the percentage would stand at approximately 50.

This finding of almost 50 per cent of positive tuberculosis among an unselected group of a semirural population indicates that the frequency of tuberculosis is still sufficient to be alarming. If one assumes this experience as typical of the country as a whole, which seems reasonable, we must still face the fact that at least half of all adults have suffered invasions by the tubercle bacillus active enough to leave discoverable scars. This is disconcerting in face of the far greater fall in the death rate from the disease.

At the same time there is some compensation in the discovery revealed by this study that only one-half as many people who have suffered tuberculous infection actually die of the disease as was the case forty years ago. The infection rate has been reduced to 50 per cent, the mortality to 25 per cent of that in 1900. A number of factors have probably contributed to this gratifying preponderance in the decline of the death rate. Better sanatorium care and the management of cases has undoubtedly made a large contribution. The fact that lessening of the infection rate has apparently shown acceleration in the past fifteen or twenty years brings comfort to those engaged in the preventive and therapeutic aspects of tuberculosis control. A 50 per cent reduction in the reservoir of spreaders must certainly mean that fewer contact cases are today submitted to massive and repeated doses of infected material. The contribution of compression therapy and surgery to this result can but be inferred. Those who advocate freer use of these measures certainly would seem to have little for which to apologize in the evidence presented by this study.

However, there are other factors in the picture which perhaps deserve first mention. Isolation is the time-honored scheme for the control of epidemic, infectious disease. It is a significant coincidence that during the period when tuberculosis mortality was reduced to one-quarter its 1900 level and infection rate cut by 50 per cent the sanatorium beds in this country increased from about 6,000 to 100,000. It would be idle not to recognize this prophylactic procedure as an outstanding influence in lessening opportunity for infection among the general public.

The result of this procedure would have been far more striking had it been possible to arouse

the medical profession to its responsibility in finding the early case and effecting its immediate isolation. Unfortunately, this is one of the weaker links in our control program. From three-quarters to four-fifths of all cases admitted to sanatoriums are still found to be in the advanced stages of the disease, already probable spreaders of the infection to others. More professional education, both undergraduate and postgraduate, is still needed to impress upon physicians how truly further progress in tuberculosis control rests in their hands.

Popular health education and school hygiene have also played their parts in reducing opportunities for infection. Beginning with teaching the infectivity of sputum, the transference of disease through common utensils, uncleanness in restaurants, the menace of infected food handlers, instruction has proceeded to the point where even an open case is of relatively little danger to his fellows if both he and they will exercise the prophylactic measures now recognized as largely effective.

Finally, better housing, elimination of industrial hazards, more applied knowledge of the laws of nutrition, and a growing consciousness of the significance of personal and community hygiene, all have played their part in reducing the transmission of tuberculous infection from case to contacts.

A highly significant factor in this study is the observation that reduction of infection as shown at autopsy has been at least as rapid among infants and children as among adults. These younger members of society can make no personal contribution to their own protection.

They must rely on that of others, nurses, teachers, parents, and relatives. Cutting their infection rate in two as well as that of their elders is clear proof that a better informed public is making an increasingly effective fight against spread of this disease.

Frost in discussing the eradication of tuberculosis wrote as follows: "Tuberculosis also differs from the other directly transmitted respiratory tract infections in that its mortality has declined consistently for the last fifty years or more and continues to decline in every part of this country for which adequate statistics are available. It is not directly established by comparable statistical evidence that there has been a proportionate decrease in the prevalence of infective cases of the disease, taking into consideration not only the number of cases but duration of the open stage. However, there appears to be no good reason to doubt that the prevalence of open lesions effective in spreading the tubercle bacillus has diminished progressively and continues to diminish in each considerable period of time."

However, it must not be overlooked that according to present autopsy records the reservoir of adults infected with tuberculosis at one time or another in their lives still amounts to half of the population. Therefore, tuberculosis can still flare up again whenever external conditions turn to the worse for the bulk of the people. Without such a reverse there exists the hope that further efforts in the campaign against tuberculosis will some day lead to a complete eradication of the white plague.—*Lande, Kurt E., and Wolf Georg. Am. Rev. Tuberc. 44, No. 2 (Aug) 1941.*

MATERNAL WELFARE

A report of a six-year study of the Maternal Welfare Committee of the Medical Society of the County of Erie will be given in Buffalo at the Buffalo Museum of Science, Humboldt Park, on Wednesday, December 17, at 8:45 P.M. It is presented under the auspices of the Buffalo Academy of Medicine, the Maternal and Child Welfare Committee of Erie, Niagara, Cattaraugus, Genesee, and Wyoming county medical societies, the University of Buffalo School of Medicine, the Division of Maternity, Infancy and Child Hygiene, New York State Department of Health, and the Medical Society of the State of New York.

Dr. Louis A. Siegel, secretary of the Maternal Welfare Committee of the Medical Society of the County of Erie, will have as his subject "Maternal Mortality in Buffalo." During Dr. Siegel's six years as secretary of this committee

he has analyzed over 300 maternal deaths and has published two interval reports in the *JOURNAL*. His six-year report, now in preparation, will be published in the *J.A.M.A.*

Dr. Francis C. Goldsborough, professor of obstetrics and gynecology, University of Buffalo School of Medicine, will speak on "Indications and Contra-Indications for Cesarean Section." Each year the Maternal Welfare Committee has stressed the fact that over 50 per cent of the maternal deaths occur in the cesarean-section group. Dr. Goldsborough will discuss the recognized indications for this operation. He will point out the dangers of section as shown by the investigation of maternal deaths in Buffalo.

Discussion of these papers will be opened by Dr. Karl Miller Wilson, professor of obstetrics and gynecology, University of Rochester School of Medicine and Dentistry.

ONE FOR THE KNEADY

"What is college bred, Pop?"

"College bred, my son, is made from the flower of youth and the dough of old age."

—*Southern Pharm. J.*

UNSUNG HERO

Some men smile in the evening, some men smile at dawn. But the man worthwhile is the man who can smile when his two front teeth are gone.

—*Dental Journal*

Medical News

County News

Albany County

The annual dinner and dance will be held at the DeWitt Clinton Hotel in Albany, on December 17. The publicity announces "Good fellowship—novel and unusual entertainment—and No War Speeches."

At the meeting of the county society on November 26, Dr. Nathan Chandler Foot talked on "Neuroses and War" at the meeting of the society on November 19. Dr. Joshua H. Leiner and Dr. Edward P. Flood led the discussion.

Bronx County

Dr. Foster Kennedy, of New York City, spoke on "Neuroses and War" at the meeting of the society on November 19. Dr. Joshua H. Leiner and Dr. Edward P. Flood led the discussion.

Broome County

Broome County health and medical organizations, hospitals, and field workers are ready for almost any sabotage or war emergency, says Dr. Ralph M. Vincent, district health officer. A survey of available medical facilities in the county indicates that a vast amount of work has been done by the various organizations—the county medical society, the medical preparedness committee, the Red Cross, as well as others.

Although the survey is still in progress, Dr. Vincent said that at present, through the combined efforts of these agencies, it is believed that the residents of any locality in Broome County would be reached quickly by medical, nursing, and first-aid personnel and that hospitalization would be provided, if necessary.

Canandaigua County

At the meeting on November 13 Dr. Leon A. Stetson spoke on "Public Health in the Preservation of Democracy."

Columbia County

A dinner that marked the beginning of an intensified campaign to wipe out tuberculosis in Columbia County was held on November 24 at the General Worth Hotel in Hudson and was attended by 180 people. Dr. Harry A. Pattison was in charge of arrangements.

Dr. Edward S. Godfrey, Jr., state commissioner of health, Dr. Peter Irving, executive secretary of the New York State Medical Society, and Dr. Kendall Emerson, director of the National Tuberculosis Association, were the speakers for the occasion that opened the Christmas Seal sale in the county.

Great enthusiasm was manifested for the new expanded program. Dr. Irving stressed the wider opportunity that practicing physicians will have for case-finding among contacts with the aid of the Department of Health.

Dutchess County

The Hudson Valley Surgical Guild of the International College of Surgeons, in cooperation with St. Francis Hospital, Poughkeepsie, held an all-day meeting on December 4. Doctors from nearby states attended the meeting which

took the form of a symposium on cancer with eminent speakers in that field. Dr. Max M. Simon, president of the guild, was in charge of the meeting and was assisted by Dr. J. E. McCambridge, Dr. J. J. Toomey, and Dr. R. J. Boyce.

Errie County

The doctors of Akron have increased their fees—effective December 1. The new fees are \$2.00 for office calls, \$3.00 for home calls in the village, and \$3.00 (plus mileage) for country calls.

See opposite page for the report of the Maternal Welfare Committee which will be given on December 17 in Buffalo.

Fulton County

The November meeting of the county society was held on November 13 at the Eccentric Club in Gloversville.

The speakers included Dr. J. R. Ross, superintendent of the Harlem Valley State Hospital at Wingdale, Dr. I. M. Rossman, senior assistant in the hospital, and Dr. H. A. La Burt, assistant superintendent of the institution. The pictures were made, arranged, and shown by Fred Neilson, of Nassau.

Neilson is troubled with an affliction of the legs and some time ago took up photography, specializing in colored motion pictures. The one picture deals with the insulin shock treatment for dementia praecox. The various stages of the treatment were explained by the visiting physicians. The intimate views of operations and treatments showed the great skill of the photographer.

Herkimer County

Adequate medical care cannot be given county relief clients on the basis of the present fee schedule adopted in April for a six-month trial period, the county society declared on November 13 at a special session in the Mohawk Valley Country Club in Herkimer.

The society discussed the minimum medical fee schedule in the regular nonwelfare cases and decided, because of the increased cost of materials and supplies and the higher cost of living generally, to adopt slight increases, effective December 15. The state workmen's compensation fee schedule will be used as a basis.

The change will probably increase minimum office call charges from \$1.50 to \$2.00. House calls will either remain at \$2.00 or be slightly increased, but night calls will go to \$3.00.

Because of the charitable nature of welfare work, the doctors adopted a resolution allowing 25 per cent reduction from the new schedule on all welfare bills, except house and hospital calls, which will remain at \$2.00. Under the present system, \$1.00 a day is allowed for hospital calls daily for five days and every other day thereafter.

Jefferson County

At the annual meeting of the society held in November the following officers were elected: president, Dr E Clifford Soultz, of Carthage, vice-president, Dr Sutherland E Simpson, of Watertown, treasurer, Dr James L Crossley, of Watertown, secretary, Dr Charles A Prudhon, of Watertown, censors, Drs Frederic R Calkins, of Watertown, Harold Gokey, of Alexandria Bay, James E McAskill, of Watertown, Harlow E Ralph, of Belleville, Jesse R Pawling, of Watertown

Kings County

The committee planning the annual dinner to the ex-presidents reports that the dinner will be held on Saturday, January 17, at the Hotel St George. At this dinner each living ex-president will be presented with a medal and scroll. There will be two prominent speakers and the doctors' orchestra will play.

The committee consists of Drs Charles A Gordon, chairman, Frank B Doyle, vice-chairman, Ignatius P A Byrne, secretary, and Charles F McCarty, treasurer—other members are Drs William C Meagher, Leo S Schwartz, H Tevel Zankel, and Mrs Louis I Harris.

In response to many requests of its members, the society is now organizing its own swing band, according to the *Bulletin*. In addition, there is a symphony orchestra, a billiard club, a doctors' choir, and a Magic Circle for doctors interested in developing magic as a hobby. The members responsible for these activities are to be congratulated, for in the present-day rush it is easy not to find time for hobbies, which are just as important for doctors as for laymen.

The pediatric section of the county society will hold a meeting on December 22 at 8:30 P M at 1313 Bedford Avenue, Brooklyn. Dr Brett Ratner, of New York City, will talk on "Allergy in Pediatric Practice."

Lewis County

The following officers were elected at the annual meeting of the society held in Lowville on October 29: president, Dr David J O'Connor, of Croghan, vice-president, Dr Edgar O Boggs, of Lowville, secretary-treasurer, Dr Elbert Dalton, of Beaver Falls, censor for three years, Dr Bruce M Phelps, of Lowville, delegate to state convention, Dr Dalton, alternate, Dr Boggs, representative to the staff, Dr Thomas A Lynch, of Lowville.

Monroe County

Dr Rufus B Crane of the medical staff of Eastman Kodak Company and Dr G Kirby Collier, psychiatrist and chairman of the committee on nervous and mental diseases of the county society, addressed the Rochester branch of the Vocational Guidance Association held last month. The speakers urged the application to candidates for jobs in industry of a plan of rehabilitation similar to that being used by the Selective Service Administration to cut down the rate of rejections for mental and physical ailments.

Dr Crane pointed out that the Selective Service Administration is sending letters to all

men registered under the draft urging them to consult family doctors and dentists if they believe themselves below the required standard and to follow treatment prescribed.

At the meeting of the county society, the Rochester Academy of Medicine, and the University of Rochester Medical School, held in the Academy auditorium on November 30, Dr Donovan J McCune, Babies Hospital, New York City, spoke on "Food Requirements for Health."

Nassau County

The monthly meeting of the society was held on November 25 at Cathedral House, in Garden City. Dr Yale Kneeland, Jr, assistant professor of medicine at Columbia, spoke on "Chemotherapy."

Listed in the *Bulletin* are the following future events of the society:

January 19 Joint Meeting with Nassau County Dental Society. Topic: The Relation of Systemic Diseases to Infections of the Oral Cavity. Speakers: Russell L Cecil, M D, professor of clinical medicine, Cornell University Medical College, Daniel E Ziskin, D.D.S., director, Department of Oral Diagnosis, School of Dental and Oral Surgery, Columbia University.

February 24 Joint Meeting with the Woman's Auxiliary to the Nassau County Medical Society. Topic: Mental Hygiene. Speaker: Richard M Brckner, M D, Neurological Institute, Vanderbilt Clinic, and Mount Sinai Hospital.

March 31 Symposium on Surgery, presented by the Nassau Surgical Society.

April 28 Symposium on Tuberculosis, presented by the Nassau County Sanatorium.

May 26 Annual Meeting. Topic: The National Nutrition Program. Speaker to be announced.

The annual dinner dance was held this year on December 6 at the North Hempstead Country Club.

New York County

On November 24 the following officers were elected for the coming year: president, Dr Maximilian A Ramirez, president-elect, Dr J Stanley Kenney, first vice-president, Dr Conrad Berens, second vice-president, Dr Francis N Kimball, secretary, Dr B Wallace Hamilton, assistant secretary, Dr John Carroll, treasurer, Dr Fenwick Beekman, assistant treasurer, Dr Howard C Taylor, Jr, censors (for three years), Dr Samuel B Burk and Dr Roy B Henline. The chairmen of committees are as follows: legislation, Dr John B Lauricella, public relations, Dr W Bayard Long, medical economics, Dr William B Rawls, and membership, Dr Carl Binger. Dr Albert H Aldridge was elected a trustee (for five years). The delegates to the State Society are Drs W P Anderton, Emily D Barringer, Conrad Berens, Harold B Davidson, Vincenzo Fanoni, W Travis Gibb, Jr, Roy B Henline, J Stanley Kenney, John B Lauricella, Madge McGuinness, Maximilian A Ramirez, Nathan Ratnoff, and William B Rawls.

Dr Annie S Daniel, for sixty years a member of the staff of the New York Infirmary for Women and Children, New York City, was recently honored at a dinner by one hundred graduates of the infirmary, several of whom studied under her in the eighteen eighties. Dr Daniel, who gives her age as 80 plus, is still in charge of the infirmary's outpatient service.

Niagara County

Inadequate public health nursing service and lack of laboratory facilities in the rural areas of the county were discussed by members of the county society at a recent meeting at the Niagara County Sanatorium at Lockport. A resolution dealing with conditions was offered by Dr W. A. Peart, of Sanborn, health officer of the town of Niagara.

Health authorities of the county have been engaged for some time in the task of enlarging the public health nursing service, and the physicians are expected to offer new evidence of the need for more nurses. The shortage of laboratory facilities is said to be a great handicap to physicians in rural areas. They are unable to confirm diagnoses without resorting to the use of equipment in city hospitals, the delay frequently resulting in serious consequences for their patients. The situation, it is claimed, is particularly serious in the case of expectant mothers who are denied adequate prenatal care.

Queens County

At the annual meeting of the county society on November 25 the following officers were elected: president, Dr Chester L. Davidson, of Jamaica, president-elect, Dr Jacob Werne, of Jamaica, secretary, Dr Ezra Wolff, of Forest Hills, assistant secretary, Dr Paul Shuey, of Jackson Heights, treasurer, Dr John J. Sheehy, of Hollis, assistant treasurer, Dr Robert Yanover, of Flushing, historian, Dr W. Guernsey Frey, Jr., of Forest Hills, directing librarian, Dr Elmer Kleefield, of Forest Hills, assistant directing librarian, Dr Alfred Angrist, of Jamaica, trustees are Dr d'Angelo, Dr Vincent Juster, of Jamaica, and Dr Walter Lynn, of Forest Hills. The censors are Dr Joseph Lanza, of Long Island City, Dr John Keating, of Rego Park, Dr David Lothringer, of Jamaica, and Dr Amadeo dePoto, of Jamaica. The delegates are Dr d'Angelo and Dr Joseph Wrana, alternates, Dr C. Nelson Baker and Dr Walter Lynn.

At the Friday Afternoon Talk on December 19 Dr Norman Jolliffe of Bellevue Hospital will speak on the "Relation of Vitamins to Disease."

"Art as a Hobby for the Busy Doctor" is the heading of a notice in the *Bulletin* that invites all members of the society to join the art club. The club has a well-equipped studio in the society's building in Forest Hills, and an art instructor is provided. The announcement concludes: "Group outings to rustic and peaceful environments are contemplated where rolling hills, drooping foliage, and humming streams will inspire us to interpret 'nature in the raw'."

Rensselaer County

At the annual dinner meeting on December 10,

held in Troy, Dr Haven Emerson spoke on "Administrative Medicine."

Schoharie County

"Tuberculosis, like a thief in the night, robs a man of his health when he is least aware of its presence. Every physician realizes the need of educating the layman to the dangers that lie in one undetected person with tuberculosis. The germs from that one person may spread to half a dozen persons," said Dr Roy G. S. Dougall, president of the county society, at the opening of the Christmas Seal sale of the Schoharie County Tuberculosis Association.

The Boy Scouts are participating in the campaign by putting up posters. In the words of one Eagle Scout: "We're covering this town like a blanket."

Steuben County

At the annual meeting held on November 13 in the Hotel Wagner in Bath, Dr Joseph B. Mathewson, of Bath, was elected president.

Other officers are: vice-president, Dr Stuart H. Bean, Addison, secretary-treasurer, Dr Rudolph J. Shafer, Corning, censors, Dr D. Roger Haggerty, Arkport, and Dr James J. Sanford, Bath. Delegates to the State Society meeting are: first district, Dr Herbert B. Smith, Corning, alternate, Dr Edwin H. Ober, Painted Post, second district, Dr Leon M. Kysor, Hornell, alternate, Dr William J. Tracy, Hornell.

Dr Ernest Lampe, Cornell University, gave a paper on "Tendon and Nerve Injuries."

Tioga County

A series of nutrition classes is being held in Owego, sponsored by the Parent-Teacher Association and the Public Health Association. Dr Ivan N. Peterson, secretary of the county society, will be the speaker for the meeting on January 6. His subject will be "The Part of the Community in National Defense."

Washington County

Erratum.—In the November 15 issue the board of censors and the chairman of the legislative committee were incorrectly listed. The board of censors consists of Dr W. C. Cuthbert, of Hudson Falls, Dr C. H. Holmes, of Cambridge, and Dr K. Creevey, of Cambridge. The chairman of the legislative committee is Dr W. A. Leonard, of Cambridge.

Westchester County

A course in general medicine has been arranged for the county society by Dr Walter W. Palmer, College of Physicians and Surgeons, Columbia University, New York City. The meetings will be held at the New York Hospital, Westchester Division, White Plains, at 8:30 P. M.

On January 14 Dr Dana W. Atchley, associate professor of medicine, College of Physicians and Surgeons, will speak on "Nephritis." Dr Albert Vander Veer, consultant in allergy, Roosevelt Hospital, and assistant director of the Allergy Clinic, New York City, will lecture on "Asthma" on March 11. The third lecture will be given on May 13 by Dr Homer F. Swift of the Hospital of the Rockefeller Institute for

Medical Research. His subject will be "Rheumatic Fever." This lecture is a cooperative endeavor between the New York State Department of Health and the Medical Society of the State of New York.

Wyoming County

The officers for 1942 are as follows: president,

Dr. Paul A. Burgeson, of Warsaw, vice-president, Dr. G. A. McQuilkin, of Varysburg, secretary-treasurer, Dr. Oliver T. Ghent, of Warsaw, delegate to state convention, Dr. Henry S. Martin, of Warsaw, alternate, Dr. G. Stanley Baker, of Castile, board of censors, Dr. Mary T. Greene, of Castile, Dr. McQuilkin and Dr. L. Hayden Humphrey, of Silver Springs.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Herbert Beals	86	N Y Hom	November 18	Buffalo
Robert G. Contrell	68	Pennsylvania	November 26	Manhattan and Englewood, N. J.
J. M. Clayland	80	Med. Col. Ohio	November 23	Brooklyn
David H. Davison	87	P & S N Y	November 22	Manhattan
K. Arvid Enlund	68	P & S Baltimore	November 17	Manhattan
John B. Harvie	84	McGill	November 14	Troy
Mace A. Losee	64	Cornell	November 8	Livingstonville
George Manulkin	57	Cornell	October 18	Brooklyn
John B. Rae	74	Glasgow	November 20	Manhattan
Harry T. Rosenthal	54	Univ. & Bell	November 23	Bronx
Edward W. Southall	90	Cleveland Hom	November 12	Geneseo
William P. Travers	44	L. I. C. Hospital	September 25	Brooklyn
Francis C. Vogt	62	L. I. C. Hospital	November 19	Brooklyn

SECTION ON HEALTH EDUCATION AND MEDICINE OPENED BY AMERICAN FILM CENTER

A section on films in health education and medicine has been established at the American Film Center according to an announcement by Donald Slesinger, director of the Center, at its office, 45 Rockefeller Plaza, New York City. Dr. Adolf Nichtenhauser is in charge of the section.

The new section is a clearinghouse and information center on the use and production of health education and medical films.

Through this section the American Film Center will evaluate existing health films in collaboration with health experts and publish, from time to time, lists of recommended films. Cooperation with the many groups using health films will be sought in order to create a solid economic basis for their production. A long-range production program will be developed in collaboration with competent agencies.

Attention will also be paid to the technical medical film, especially with regard to its use in medical schools. From its beginning the Ameri-

can Film Center has cooperated with medical and scientific agencies, such as the Wistar Institute of Anatomy and Biology in Philadelphia and various hospitals in New York and New England, in the study and production of films.

Dr. Nichtenhauser has been working in educational cinematography for many years. Before joining the Center he was on the staff of the National Tuberculosis Association and of the New York Tuberculosis and Health Association, where he worked on health films. His production associate, Ensign Warren Sturgis, is on leave with the Naval Medical School.

The Section on Health and Medical Films has received a three-year grant from the Rockefeller Foundation.

The American Film Center, an educational organization supported by the Rockefeller Foundation, was established in the summer of 1938. Among the members of its Board is Kenneth D. Widdemer, director of the Committee on Neighborhood Health Development.

The thirty-eighth annual meeting of the Phi Delta Epsilon medical fraternity will take place at the Waldorf-Astoria Hotel, New York City,

December 30 and 31. Dr. Morris Fishbein, editor of the J.A.M.A., will be one of the banquet speakers.

Hospital News

See Emergency Notice on Page 2393

Hospitals and Priorities

IN THE November issue of the *Modern Hospital* there appears an up-to-date summary of the hospital and priorities situation. Commenting, editorially, the same publication says

"The federal government has expressed, through various officials, a desire to do everything possible to maintain the service of hospitals during the current emergency. 'Everything possible' must be interpreted in terms of the current situation and the judgment of different officials as to the amount of effort that will be required to defeat Hitler. The Supply Priorities and Allocation Board is apparently determined not to underestimate the job it faces

"We in the hospital field must not underestimate it either. We must make every possible effort to cooperate in the present national effort and to continue to merit the preferential treatment that we are receiving at the hands of the government

"The resolution on this subject adopted at the recent Atlantic City convention should become the guide of all hospitals. This resolution pledged the hospitals to analyze their needs carefully (eliminating all wanted items that are not strictly necessary), to eliminate all possible waste, to keep inventories down to actually indicated needs, and to give full cooperation in the national interest during this time of emergency

"The maintenance and repairs order was recently amended by O P M to give hospitals an A-10 rating for all needed operating supplies. Since hospitals are only one of 22 large industries that are included in this order, it is impossible for federal officials to maintain minute control over the use of the plan. Hospitals are, therefore, put on their honor to use the plan only when necessary

"If some hospitals abuse the special privileges extended to them, the result will be greater difficulty for all institutions—closer control by federal officials and more paper work for the hospitals.

"There is a war to win and we in the hospital field are determined to do our part to see that it is won as quickly and effectively as possible. This is the only humanitarian viewpoint possible."

Newsy Notes

Dr William T. Clark was unanimously elected to succeed the late Dr Walter S. Goodale as superintendent of Meyer Memorial Hospital in Buffalo. Dr Clark has been associated with the hospital for sixteen years and has served as assistant superintendent since 1939

More than 100 executives of eastern state hospitals attended the New York Institute for Hospital Administrators held this fall at the Cornell Medical College in New York City

The superintendent of the Mount Vernon Hospital, Arthur B. Solon, informed the Board of Managers at a meeting last month that the average price of hospital commodities in September was 19 per cent higher than in the same month a year ago, food, 73 per cent, cotton goods, 43 per cent, dairy products, 34 per cent, canned fruits, 31 per cent, canned vegetables, 30 per cent, surgical dressings, 18 per cent, and drugs and chemicals, 2 per cent.

In an address before the New York State Nurses Association held in Brooklyn last month, Miss Caroline Falls, director of the defense program of the association, said that in case of war 20,200 registered nurses in New York State would be ready to serve in the armed forces of the country. She reported that last December 60,000 questionnaires were sent by the association to as many registered nurses under the sponsorship of the United States Public Health Service. Of the 32,000 who responded, 14,000 indicated their willingness to serve in the Army and 6,200 in the Navy in case of war

Dr Henry Wigerson, former New York University instructor in surgery, left last month for Palestine where he will be head neurosurgeon in the Rothschild-Hadassah University Hospital.

Thirty per cent of the patients at Beth Israel Hospital in New York City are men and women who were cast into concentration camps and jails after Hitler rose to power in Germany. The hospital celebrated its fiftieth anniversary last month. Its initial capitalization was \$10 contributed by forty Jewish merchants, tailors, and peddlers who decided to care for the neglected sick among the 250,000 Jews—many of them immigrants—who lived in a square-mile area along the narrow, crooked streets of the lower East Side

A reversal of hospital reports generally seen today is that of the Frederick Ferris Thompson Hospital in Canandaigua, which says that the hospital income per patient day showed an increase and the cost per day went down in the year. Whereas the average income per patient day was \$4.17 plus in 1940, it was \$4.42 in 1941, and the cost per patient day decreased from \$4.91 last year to \$4.83 in the current year

Only 9 of the 291 births in the City of Corning occurred outside the Corning Hospital during the first six months of 1941. A new, badly needed delivery table has just been installed. The hospital has an unusually low rate for maternity care—\$45 for ten days in a private room, which includes everything.

Nearly 10 per cent of all the hospitals in the United States offering courses to train volunteer nurses' aides are located in Westchester, according to a recent announcement by Fiorello H. La Guardia, Director of the Office of Civilian Defense

Hospital rates are going up. That is the crystallized conclusion drawn from a quick nation-wide survey made recently by the *Modern Hospital* to determine the trend in the field as a whole.

Those that have acted during the last six months have raised their rates, on an average, 50 cents a day. Laboratory, x-ray department, and operating room fees, flat rates for maternity cases, charges for drugs and dressings, all have been increased in many hospitals to offset a budget deficit.

Dr. Fraser D. Mooney, superintendent of the General Hospital, Buffalo, has been re-elected president of the Western New York Hospital Council. Speaking at the Council's annual round table was Robert I. Millonzi, assistant counsel of the New York State Department of Agriculture and Markets, who urged the hospitals to pool their physical equipment, ideas, and personnel as their contribution to the defense program. Dr. James R. Borzilleri, president of Columbus Hospital, told the same meeting that "hospitals, to survive as free institutions, must be ever alert to maintain control of themselves, while gracefully accepting the inevitable increasing government subsidies."

Dr. Irvin Abell, in making the announcement of the 1941 list of approved hospitals, said that "hospitals are more appreciated today than ever before, doubtless because the nation in mobilizing its resources for defense has recognized the fundamental value of a high average of health."

On October 30 Blue Cross Day was observed throughout the country. The occasion marked the enrollment of seven and a half million American workers and their families as hospital service subscribers.

The new library at the South Nassau Communities Hospital in Oceanside was recently dedicated to Miss Mary Pearson, superintendent of the institution.

Miss Marian G. Randall has been appointed by Mayor La Guardia as nursing consultant in the Medical Division of the Office of Civilian Defense. Miss Randall is on leave of absence from the Henry Street Visiting Nurse Service.

Improvements

The superintendent of the General Hospital of Syracuse, Carl P. Wright, had no sooner re-

ceived the green light from Washington than he had the building committee on the phone and an impromptu ground-breaking took place for the new wings of the hospital for which some 5,900 Syracusans pledged nearly half a million dollars last spring. The construction had been delayed because of the lack of steel. The hospital bed shortage has been so acute that in some cases men have had to be put in the maternity ward.

In Westfield a campaign has just been conducted to raise funds for a new hospital. Among the pledges are work contracts that bind the signers to a stated amount of labor in revamping the building or grounds. Chief among the signers of these pledges are welfare cases unable to give money.

The new \$75,000 addition to Butterfield Hospital in Cold Spring will be completed about the first of the year.

St. Mary's Hospital in Amsterdam has a new deep-therapy equipment added to the x-ray department.

Construction of a new wing to the present Ossining Hospital at an expenditure of about \$40,000 is now being considered.

An electrocardiograph has been presented as a gift to the Nathan Littauer Hospital in Gloversville by Jacob Zuckerwar, glove manufacturer of that city.

Plans have been set in motion by the Board of Trustees of the Geneva General Hospital to secure a loan of \$68,000 from the Federal Government for the rehabilitation of the second floor of the old east wing of the building.

A new dispensary building at Kings County Hospital in Brooklyn, costing approximately \$1,000,000, was recently dedicated. The new dispensary will enable its professional staff to treat patients under ideal conditions. Additional units are planned for Harlem, Lincoln, Coney Island, and Cumberland hospitals, besides increases in present facilities for Bellevue, Queens General, and Morrisania hospitals.

Huntington Hospital has an iron lung, recently secured through the National Foundation for Infantile Paralysis.

The Ilion Hospital Board agreed to accept a federal fund allocation of \$80,000 for the con-

struction of an \$110,000 addition to the hospital which would double its capacity

On October 27, ground was broken for the new Nightingale Hospital, an institution for the treatment of cancer, at 163rd Street and Fort Washington Avenue. Mayor La Guardia and Dr. Nicholas Murray Butler, president of Columbia University, were the principal speakers. The hospital will be built and maintained by the city and will be staffed by Columbia Uni-

versity and the Presbyterian Hospital. The new unit in the city's hospital system will cost an estimated \$2,218,500 and is scheduled for completion in March, 1943. It will have a capacity of 315 beds and will replace the old New York City Cancer Institute on Welfare Island and the Cancer Clinic on East Fifty-ninth Street.

The \$21,000 addition to St. John's Riverside Hospital in Yonkers was completed last month.

Prize Essays

THE Merritt H. Cash Prize and the Lucien Howe Prize will be open for competition at the next Annual Meeting of the Medical Society of the State of New York, April 27, 1942, in New York City.

The Lucien Howe Prize of \$100 will be presented for the best original contribution on some branch of surgery, preferably ophthalmology. The author need not be a member of the Medical Society of the State of New York.

The Merritt H. Cash Prize of \$100 will be given to the author of the best original essay on some medical or surgical subject. Competition is limited to the members of the Medical Society of the State of New York, who at the time of the competition are residents of New York State.

The following conditions must be observed:

Essays shall be typewritten or printed with the name of the Prize for which the essay is submitted, and the only means of identification of the author shall be a motto or other device. The essay shall be accompanied by a sealed envelope having on the outside the same motto or device and containing the name and address of the writer.

If the Committee considers that no essay or contribution is worthy of a prize, it will not be awarded.

Any essay that may win the prize automatically becomes the property of the Medical Society of the State of New York "to be published as it may direct."

All essays must be presented not later than February 1, 1942, and sent to the Chairman of the Committee on Prize Essays of the Medical Society of the State of New York, 292 Madison Avenue, New York.

CHAS. GORDON HEYD, M.D., Chairman
Committee on Prize Essays

PROOF

Patient (coming out of ether) Oh doctor, I'm in heaven, in heaven!

Doctor (pointing across the room) No, lady, you aren't in heaven. There sits your husband. —Selected

A SLIGHT SLIP

Boss Say, what does this mean? Someone called up that you couldn't come to work since you were sick.

Man The joke's on him. He wasn't supposed to call up until tomorrow. —Selected

Public Health News

THE APPROVED LABORATORY IN NEW YORK STATE IN RELATION TO CHEMOTHERAPY

JOHN K. MILLER, M D, Albany, New York

THE role of the laboratory in the management of infectious diseases has become increasingly important with the development of effective treatment by sulfanilamide and its derivatives. It is fortunate, therefore, that laboratory facilities are already available in the state through the system of approved laboratories. The joint efforts of the Division of Laboratories and Research and the New York State Association of Public Health Laboratories, a separate, independent organization whose members are elected from qualified representatives of the approved laboratories, have been directed toward the maintenance of high standards through the provision of well-qualified directors and pathologists in charge, by the establishment of uniform technical procedures, and by research leading to the introduction of new and improved methods. From time to time the Association has prepared leaflets on laboratory aids in the diagnosis of a number of diseases including pneumococcal and streptococcal infections.

Laboratory procedures that contribute to effective chemotherapy by sulfanilamide and its derivatives can be divided into three groups: (1) methods of isolation and identification of the inciting agent, (2) a quantitative chemical determination of the amount of the drug in body fluids, (3) procedures for the detection of the toxic effects of the drug. A proper evaluation of the results of these tests requires a determination of the pretherapeutic status of the cellular constituents of the blood, the content of the urine, and the renal function.

Identification of Inciting Agent

Chemotherapy does not remove the necessity for determining the inciting agent of an infection. In fact, identification of the invading microorganism is a definite aid not only in the decision to use chemotherapy but also in the choice of the sulfonamide that acts most effectively in the particular infection. For example, these drugs have no demonstrable action in pneumonias of virus origin, but sulfapyridine, sulfadiazine, and sulfathiazole are effective in pneumococcal pneumonias, and sulfathiazole and sulfadiazine are effective in staphylococcal pneumonias. In mixed infections of the urinary system a bacteriologic differentiation of the microorganisms present is important. Most of the common incitants are susceptible to sulfanilamide but, of the compounds now available, sulfathiazole and sulfadiazine are the only ones that inhibit the staphylococcus and entero-

coccus—for example, *Streptococcus fecalis*. One of the most significant early steps in effective chemotherapy is, thus, the responsibility of the laboratory—namely, the attempt to isolate and identify the causative microorganism in the exudates or other material from the lesion in the blood, spinal fluid, or urine. If the incitant is identified, the patient would not be subjected to the toxic action of a drug that is not effective in his particular infection.

It is important also to know the type of the incitant of an infectious disease for which there is type-specific serum that can be used in cases failing to respond to a drug or in which combined serum therapy and chemotherapy are advisable. In pneumococcal pneumonias a specimen of sputum for pneumococcus typing should be obtained before chemotherapy is started. This avoids delay if serum is to be administered later. Moreover, determination of type may be difficult after chemotherapy is instituted. Similarly, it is essential to know the group to which the streptococcus belongs, since strains of certain groups are more easily inhibited by sulfanilamide than are others.

Examination of a blood culture is another valuable diagnostic procedure in the management of an infectious process. It serves as a check on the bacteriologic diagnosis of material from the primary lesion. More important, however, is the fact that the presence of a bacteremia influences the course of therapy, as well as the prognosis and the probability of complications. It is especially desirable to obtain a specimen of blood for culture before starting chemotherapy, otherwise blood from patients receiving one of the sulfonamides might contain sufficient drug to retard the growth of bacteria in that blood when it is inoculated into mediums.

Chemical Determination of the Amount of Drug in Body Fluids

Once the proper sulfonamide has been selected and therapy commenced, a quantitative chemical determination of the concentration of the drug in the blood is valuable in controlling adequate dosage and in avoiding toxic effects. In meningitis, determinations on both blood and spinal fluid are important because there may be an effective level in the blood but not in the spinal fluid. Both the free and total concentration of drug should be estimated. The difference indicates the amount that has been acetylated. It is the acetyl compound, occurring to a greater extent with sulfapyridine and sulfathiazole, which is associated with the injurious formation of crystals and uroliths in the urinary system.

The best method of quantitative determination of the sulfonamides is that of Marshall.¹⁻³ The details of the procedure in mimeographed

Presented at the Conference on Chemotherapy held under the joint sponsorship of the Medical Society of the State of New York and the New York State Department of Health, October 7, 1941, Albany, New York.

From the Division of Laboratories and Research, New York State Department of Health.

form have been distributed to the directors of the approved laboratories whose facilities for carrying on this work are being surveyed by the Division of Laboratories. It should be noted that under the conditions of the method certain compounds—such as phenacetin, aniline, and such drugs as procaine, epinephrine, ephedrine, and certain amino acids (tryptophan)—will produce a color interfering with the test.^{4,5} Therefore, a determination should not be done on blood from patients receiving such drugs.

Detection of the Toxic Effects of the Drugs

During the course of therapy with sulfonamides, certain toxic effects may occur. Anemia, leukopenia, and agranulocytosis have been noted most frequently following treatment with sulfanilamide, with sulfapyridine and sulfathiazole, hematuria and impairment of renal functions occur more often. However, each of the sulfonamides may produce any of these toxic effects. With the exception of agranulocytosis, these manifestations can usually be discovered by daily clinical observation. Certain simple laboratory procedures, however, facilitate the early detection of toxicity: hemoglobin determination and erythrocyte count for the presence of anemia, total and differential leukocyte count for the detection of agranulocytosis, examination of the urine with particular attention to the presence of red blood cells and crystals of acetylated sulfonamides indicative of damage to the urinary tract, and measurement of the total daily urinary output as a check on renal function. Suspected impairment of the renal function should be confirmed by the determination of the nonprotein nitrogen in the blood. If the initial level is high or if hematuria or anuria occurs, it may be necessary to have this determination made daily.

The frequency of tests during therapy depends on the intensity and duration of treatment, toxic manifestations, and therapeutic response. The interval should be decided by the clinician with regard for the limitation of laboratory facilities available to him. Ordinarily, the concentration of the drug in the blood should be determined within the first twelve to eighteen hours of therapy, particularly when there has been no response to treatment, if the infection is severe and the patient is receiving intensive therapy, determination should be made daily thereafter. A hemoglobin estimation and a total and differential leukocyte count should be done at one- to three-day intervals, especially during the first week of therapy. Since agranulocytosis usually occurs after the fourteenth day of treatment, daily leukocyte counts should be done when therapy is continued for two weeks or longer. Patients receiving sulfapyridine or sulfathiazole should have a determination of the total daily urinary output and an examination of urine, particularly the urinary sediment, every other day. There is less need to examine the urine when sulfanilamide or sulfadiazine is used. Examinations of the blood and urine at weekly intervals usually suffice for

ambulatory patients receiving the average course of therapy for such an infection as gonorrhea. Failure to improve under chemotherapy when there is adequate concentration of drug in the blood and an absence of detectable complications is an indication for additional bacteriologic studies in a search for a possible secondary invading microorganism.

In view of the increasing use of sulfonamides, the Division of Laboratories and the Association are investigating certain new procedures which they believe will aid in the management of infectious diseases treated by the sulfonamide derivatives. The work of Finland⁶ and Janeway⁷ and studies by the Division of Laboratories^{8,9} indicate that para-aminobenzoic acid or its sodium salt inhibits the bacteriostatic action of sulfonamides on microorganisms in blood inoculated into culture mediums. This allows the detection of a bacteremia that might otherwise be hidden by the action of the sulfonamide. The results of these observations will shortly be made available to the approved laboratories. A simple rapid method is needed to estimate the resistance of a strain of microorganism to a chemotherapeutic agent. A comparative study of several methods¹⁰⁻¹² is being made, but it is too early to evaluate the results. With such tests, differences in the capacity of the sulfonamides to inhibit the growth of a strain could be shown. Likewise, differences in the resistance of various strains of an organism and the acquisition of strain resistance during therapy could be detected. Such information, if evaluated with regard for differences between conditions *in vitro* and *in vivo*, would be of value in the management of chemotherapy.

Thus it is hoped that by these investigations and future research the scope of the laboratory services of the state, through the collaboration of the central state laboratory with the local approved laboratories, may be extended in these new fields.

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Women's double chins prove that exercising is a poor method of taking off fat—*Med. World*

Flattery is soft soap and soft soap is 90 per cent lye
—*Title and Tilt*

Public Health News

THE APPROVED LABORATORY IN NEW YORK STATE IN RELATION TO CHEMOTHERAPY

JOHN K. MILLER, M D, Albany, New York

THE role of the laboratory in the management of infectious diseases has become increasingly important with the development of effective treatment by sulfanilamide and its derivatives. It is fortunate, therefore, that laboratory facilities are already available in the state through the system of approved laboratories. The joint efforts of the Division of Laboratories and Research and the New York State Association of Public Health Laboratories, a separate, independent organization whose members are elected from qualified representatives of the approved laboratories, have been directed toward the maintenance of high standards through the provision of well-qualified directors and pathologists in charge, by the establishment of uniform technical procedures, and by research leading to the introduction of new and improved methods. From time to time the Association has prepared leaflets on laboratory aids in the diagnosis of a number of diseases including pneumococcal and streptococcal infections.

Laboratory procedures that contribute to effective chemotherapy by sulfanilamide and its derivatives can be divided into three groups: (1) methods of isolation and identification of the inciting agent, (2) a quantitative chemical determination of the amount of the drug in body fluids, (3) procedures for the detection of the toxic effects of the drug. A proper evaluation of the results of these tests requires a determination of the pretherapeutic status of the cellular constituents of the blood, the content of the urine, and the renal function.

Identification of Inciting Agent

Chemotherapy does not remove the necessity for determining the inciting agent of an infection. In fact, identification of the invading microorganism is a definite aid not only in the decision to use chemotherapy but also in the choice of the sulfonamide that acts most effectively in the particular infection. For example, these drugs have no demonstrable action in pneumonias of virus origin, but sulfapyridine, sulfadiazine, and sulfathiazole are effective in pneumococcal pneumonias, and sulfathiazole and sulfadiazine are effective in staphylococcal pneumonias. In mixed infections of the urinary system a bacteriologic differentiation of the microorganisms present is important. Most of the common incitants are susceptible to sulfanilamide but, of the compounds now available, sulfathiazole and sulfadiazine are the only ones that inhibit the staphylococcus and entero-

coccus—for example, *Streptococcus fecalis*. One of the most significant early steps in effective chemotherapy is, thus, the responsibility of the laboratory—namely, the attempt to isolate and identify the causative microorganism in the exudates or other material from the lesion in the blood, spinal fluid, or urine. If the incitant is identified, the patient would not be subjected to the toxic action of a drug that is not effective in his particular infection.

It is important also to know the type of the incitant of an infectious disease for which there is type-specific serum that can be used in cases failing to respond to a drug or in which combined serum therapy and chemotherapy are advisable. In pneumococcal pneumonias a specimen of sputum for pneumococcus typing should be obtained before chemotherapy is started. This avoids delay if serum is to be administered later. Moreover, determination of type may be difficult after chemotherapy is instituted. Similarly, it is essential to know the group to which the streptococcus belongs, since strains of certain groups are more easily inhibited by sulfanilamide than are others.

Examination of a blood culture is another valuable diagnostic procedure in the management of an infectious process. It serves as a check on the bacteriologic diagnosis of material from the primary lesion. More important, however, is the fact that the presence of a bacteremia influences the course of therapy, as well as the prognosis and the probability of complications. It is especially desirable to obtain a specimen of blood for culture before starting chemotherapy, otherwise blood from patients receiving one of the sulfonamides might contain sufficient drug to retard the growth of bacteria in that blood when it is inoculated into mediums.

Chemical Determination of the Amount of Drug in Body Fluids

Once the proper sulfonamide has been selected and therapy commenced, a quantitative chemical determination of the concentration of the drug in the blood is valuable in controlling adequate dosage and in avoiding toxic effects. In meningitis, determinations on both blood and spinal fluid are important because there may be an effective level in the blood but not in the spinal fluid. Both the free and total concentration of drug should be estimated. The difference indicates the amount that has been acetylated. It is the acetyl compound, occurring to a greater extent with sulfapyridine and sulfathiazole, which is associated with the injurious formation of crystals and uroliths in the urinary system.

The best method of quantitative determination of the sulfonamides is that of Marshall.¹⁻³ The details of the procedure in mimeographed

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From the Division of Laboratories and Research, New York State Department of Health.

establish plaintiff's case, first, since they failed to state the facts as proved and, second, and more important, they failed to establish that anything that was done or left undone caused the death of the patient.

The high court ruled that the action had been properly disposed of upon the trial and in its opinion stated, in part, as follows

" it is not only the physician's duty to devote to his patient his best skill and attention, but not to leave a patient precipitately, without making arrangements which might be reasonably concluded to accomplish favorable results.

"However, there are other rules which are as sound as those relating to the doctor's duty. One is that the doctrine of *res ipsa loquitur* has no place in a case of this nature. A mere failure to effectuate a cure does not raise the presumption of want of proper care, skill or diligence upon the part of a physician. In the instant case, insofar as the proof adduced by appellants concern it, the theory is that Mrs. W died very soon after the departure of the attending physicians, hence negligence

"Counsel for appellant lays down the premise that the only question to be answered is 'whether or not the appellee was guilty of negligence in the practice of this case,' and we agree, but the real question is, whether or not the doing of anything by the doctors, or the leaving of anything undone which is required of a physician when he undertakes the task, was the proximate cause of the death of Mrs. W. Accepting the testimony of the lay witnesses to the fullest extent, accompanied by the expert testimony of Dr. M, we fail to find any proof that death was due to any factor except the shock coming at a time when the patient's condition was not such as to meet it. Even if the rule of *res ipsa loquitur* applied, it is difficult to see how, under any circumstances, it could supply the absence of proof of the specific negligence charged in the case."

In concluding the Court stated

"Before plaintiff is entitled to recover, it must be shown that the defendant was negligent, that his want of skill or neglect to do something which a physician of ordinary skill would have done, resulted in death or injury."

PUBLIC EDUCATION IN MEDICAL MATTERS

is the subject of an editorial that appeared in the *New England Journal of Medicine* and which is herewith reprinted.

The Diabetes Education Program that is being sponsored by the Metropolitan Life Insurance Company is an encouraging example of public interest in good medicine. The increasing evidence that the early recognition and careful control of diabetes are important in checking the progress of the pancreatic and neurovascular lesions makes such a program particularly timely.

The economic value of good health to such an insurance company is, of course, obvious. But good public health or that of the individual is of equal value to private enterprise. Loss of work due to ill health is an economic burden to almost all industry. The vast sums of money spent annually by the American people on life and sickness insurance provide evidence concerning the value that they have long placed on life and health.

Advances in medical science have so increased the effectiveness of available medicine that the public's interest is shifting from insuring health and life by cash indemnities to securing health and longevity by medical care. The expansion of health programs by state departments of public health and a variety of nonprofit lay organizations reflects the public's increasing appreciation of the effectiveness of modern medicine.

The National Health Conference and the recent National Nutrition Conference were reflections of public awareness and interest. The federal government has responded through the programs of the United States Public Health Service, of the Maternity and Child Welfare Di-

vision of the Department of Labor, and of the National Health Institute at Bethesda, Maryland. This increased awareness is creating an increased demand for medical care. To finance this care, a variety of plans for voluntarily distributing and budgeting the costs of medical care are developing throughout the country. Although it is not widespread, there is even some demand for compulsory health insurance. Insofar as the layman's medical education is good and the plans for budgeted health services are sound, the medical profession, as well as the public, will benefit. The result should be more and better medicine more widely and, therefore, with present economic trends, better paid for in the long run.

So far so good, and the medical profession should indeed be happy. But there are, of course, many who will turn the public's interest in medicine to their personal advantage. For every educational program like that sponsored by the Metropolitan Life Insurance Company for better health, there will be one hundred programs on the radio and in the press sponsored by commercial organizations for the sale of unneeded or worthless medication. The same American advertising genius that has popularized alkalinizing, laxatizing, and antihaltizing remedies apparently is taking over the newly cultivated fields of vitamin and hormone therapy. As it does so, the money that the public should spend for effective health and medical services will be squandered to such an extent that sums spent on the trial-and-error method of establishing workable insurance schemes will seem inconsequential. But no matter what becomes of the money, the medical profession in the end will pay the bill so the public will be happy anyway.

Medicolegal

LORENZ J. BROSNAN, ESQ

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Wrongful Death Case—Failure of Proof

THE highest court of one of the southern states recently handed down its decision in an interesting case in which it was sought to impose liability upon two physicians by reason of the death of a patient following childbirth.* The action was brought by the plaintiff as administrator of the deceased to recover damages for the death of the patient against Dr. T and Dr. P.

It seems from the proof on the trial that previous to the day of the delivery of the patient arrangements had been made for Dr. T to attend her, and on that day he was called a distance of five miles and arrived at the home at 7:30 A.M. He was told that the woman had been suffering from convulsions and promptly gave her a "shot of medicine from a glass container." He examined her heart and blood pressure. As testified to on the trial by the plaintiff's lay witnesses, Dr. T realized the situation was serious and called in a Dr. P, who promptly arrived and was told of what had developed. A hospital was considered, but as the nearest one was 30 miles away, the doctors proceeded with the delivery. Chloroform and other drugs were used, and by means of forceps the child was delivered alive. The doctors stayed with the woman for over two and a half hours, including a period of forty-five minutes after delivery. The child lived, but the mother died shortly after the doctors left.

Certain relatives and neighbors testified that Dr. T had remarked, upon learning of the convulsions, that he doubted the mother would be saved, and they expressed an opinion that he left too soon after the delivery. It was further stated upon the trial that the doctors left the patient in the charge of relatives and of her mother with instructions as to care and gave them directions as to how to reach him if needed. He was called back in a short time, but the patient was dead on his arrival.

The foregoing was, in substance, the testimony of the lay witnesses called by the plaintiff, except that one of them said that on leaving the patient Dr. T remarked that "she was getting along all right."

The plaintiffs called a Dr. M as an expert witness. His answer to general questions about chloroform was that its use depended on the symptoms and would have to depend on things within the knowledge of the doctor in attendance. However, the answer "No" was given to the following question by Dr. M: "From your general practice and from your general knowledge of practice in this county, I'll ask you if it would be regarded as ordinary skill and an ordinary way to practice medicine in this county, if called upon to attend a mother in childbirth, and you found she was suffering from spasms and was

unconscious, and you began to administer medicine that would eventually produce unconsciousness, and continue to use that medicine, for instance, chloroform, which would tend to produce more unconsciousness and make the patient unconscious entirely, and in that condition, after the birth of the child, you would walk off and leave the mother in that condition, is that considered ordinary skill?" The same doctor was also asked: "In labor cases, when you attend a patient and they were unconscious when you want to see them, and you used medicine to put them to sleep in order to relieve suffering and aid in childbirth, is it customary to leave a patient in that condition when they are suffering and flooding to such an extent that it was dangerous and liable to result in death in any case?" His answer to the latter question was: "I don't know the general practice, all I can say is that it is not my mode of practice."

The version given upon the trial by Dr. T was considerably different and much more explicit. He told of failure of the patient to come in for prenatal care in response to instructions. He testified that upon arriving he had found that the patient was in a convulsion, already having had two such attacks. He gave morphine and, when another convulsion was observed, called in Dr. P to assist. They found more dilatation necessary and administered medication. Dr. P handled the forceps and Dr. T gave chloroform to prevent further convulsions. After the delivery, according to the testimony of Dr. T, he took charge of the mother. Examination revealed the uterus properly contracted, and he remained in attendance for an hour and a half. He administered pituitary to control bleeding and regulate contraction. On leaving, he administered a heart stimulant.

He stated that when he arrived in the first instance he realized the serious condition of the patient but gave as his opinion that it would have been too dangerous to remove the patient to a hospital because of the long distance to be traveled. He attributed the death to shock due to eclampsia, which had brought on the convulsions. Dr. T testified that he and his associate had done everything possible for the patient and that remaining in attendance would not have saved her. He stated that usual and customary practices had been followed throughout. Dr. P corroborated the testimony of Dr. T.

The case was dismissed as to Dr. P and, after all testimony had been given, the Court directed a verdict in favor of the defendant Dr. T. The plaintiff took an appeal from the decision as regarded Dr. T only.

Upon appeal the plaintiff relied in great part upon the answers made by Dr. M to the two questions quoted above. The Appellate Court, however, ruled that they were not sufficient to

* *Williams vs. Tarter*, 151 S. W. (2nd) 783

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Woman's Auxiliary

To the Medical Society of the State of New York

CHRISTMAS again! It is a happy coincidence that we reach the half-way mark in our Auxiliary year at Christmas time. Renewing within ourselves the spirit of the season we pause to "look at the record" comparing our hopes and plans with our accomplishments.

As we push ahead in our auxiliary work toward our goal let us carry with us the Spirit of Christmas while we assist our tireless Healers of the Body to spread to all people a knowledge of Health without which there is no peace or happiness. To each member of our Auxiliary, Greetings and the old, old wish, Joy at Christmas

Your president,

VIRGINIA ADAMS

County News

Albany At an open meeting recently held at the Joseph Henry Memorial, Dr Harold Street gave a talk on "Nutrition." Preceding the talk a business meeting was held. Mrs. Darwin A. Bruce was chairman for the social hour which followed, assisted by Mesdames Louis J. De Russo, Philip Hacker, Joseph Heim, Charles A. Perry, Simon Propp, Walter A. Reynolds, Charles E. Stott, Joseph I. Schleinstein, Raymond Kircher, Emerson C. Kelly, and John Cetner.

Columbia. At a banquet opening the Christmas Seal Sale for County Tuberculosis work, many of the doctors and their wives enjoyed hearing Dr. Peter Irving, general manager and executive secretary of the New York Medical Society. Dr. Irving stated that unwillingness and reluctance on the part of citizens to take tests because of fear and expense was one of the greatest problems practicing physicians and health departments have to face. Expense is of no small moment and work is under way to provide for more tests through tax funds, he said. Dr. Irving was clear to state that this does not mean the support of socialized medicine.

Dr. Edward S. Godfrey, Jr., state commissioner of health, and Dr. Kendall Emerson, director of the National Tuberculosis Association, were also speakers at this meeting.

At the November meeting a luncheon was held at the General Worth Hotel in Hudson. Those present were Mrs. Robert L. Bowerhan, Mrs. Hugh G. Henry, Mrs. Harry A. Pattison, Mrs. Ralph F. Spencer, Mrs. John L. Edwards, Mrs. Charles L. Nichols, Mrs. William D. Collins, Mrs. W. L. J. McDonald, Mrs. O. H. Bradley, Mrs. Henry C. Galster, Mrs. Caldwell B. Esselstyne, Mrs. Sherwood V. Whitbeck, Miss Mary G. Whitbeck, Mrs. Heinz Salm, Mrs. Leonard M. Neisen, Mrs. Henry J. Noerling, Sr., and Mrs. Leonard D. Carpenter.

At the request of Mrs. Bowerhan, president, Mrs. Henry, president-elect, presided. During the business meeting, Mrs. Pattison, Mrs. Salm, Mrs. McDonald, Mrs. Spencer, and Miss Whitbeck signified their willingness to attend and help on committees for the State Convention.

Dr. Ralph F. Spencer, president of the county

medical society, was the guest speaker. He stressed the importance of lay education as regards cancer and the valuable part that the doctors' wives can play in this work. Dr. Spencer said that the New York Legislative Cancer Survey Commission has pointed out that there are three main points of attack for the solution of the cancer problem: (1) lay education, (2) professional education, (3) increase in local facilities for diagnosis and treatment of cancer. Lay education is by far the most important, he told the group. Through it the fear and dread of the disease may be overcome and the pessimistic attitude toward cancer extinguished.

Montgomery Auxiliary hears project. Mrs. E. A. Bogdan addresses the meeting—giving a talk on "Health Education." Mrs. P. J. Fitzgibbons presided at the tea table. This meeting was held at the Amsterdam City hospital. Members from various city and county clubs, a number of public school teachers, and nuns from St. Stanislaus and St. Mary's schools were present. Mrs. Bogdan said that the business of health education was the cornerstone upon which the auxiliary was founded and that the National Medical Auxiliary has adopted as its slogan, "Hygeia for Health."

She then explained the importance of a health magazine for nonmedical readers, a periodical through which the public might be enlightened in medical science. This need was recognized as early as 1920 by many physicians affiliated with the American Medical Association. She also said the possibility of such a publication became more definite the following year and a magazine called *Hygeia*, a name chosen because it is a symbol of medical science and preventive medicine, was first issued in April, 1923.

Mrs. Bogdan went on to explain that it was the aim of the auxiliary to place this magazine in the high schools of the city, and it was also hoped to have it available in the grade schools. She urged cooperation of Parent Teacher Associations in this important undertaking.

Nassau. On December 16 at the Nassau Hospital Auditorium at 8:30 P. M. the auxiliary will have its Christmas party.

On January 27 at the same place at 8:45 P. M., moving pictures will be shown by Eugene H. Coons.

Rensselaer The medical unit met at the Y.W.C.A. in Troy. Scientific advances in medicine in the last decade, especially in relation to their economic aspects, were discussed by Dr. John O. Sibbald, president of the Rensselaer County Medical Society. Dr. Sibbald discussed public health trends and commented upon the symposiums that the society has conducted during the year to acquaint medical men with current events in the field of economics and world politics.

Women of the auxiliary, he said, can aid their husbands by encouraging them to take an interest in significant events outside the field of medicine.

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Except for the World's Fair, perhaps, all more publicized attractions have but small-time carnival crowds in comparison to the total Americans visiting their National Parks in recent years.

In 1940, for example, sixteen million, seven hundred and fifty-five thousand were officially recorded as the total attendance at such points of interest. In 1941, the number increased by twenty-six per cent (official year ending September 30) to reach an all-time high of more than twenty-one millions.

This growing interest in the wonders of nature in our own country is even more impressive when compared with records just eight years ago when only three and one-half million Americans paid any enthusiastic attention to the tremendously interesting marvels here in this country.

Other indications of the magnitude of the attendance may be grasped from the fact that Park Service areas were visited by sixteen per cent of the population of the United States. Travel to the twenty-six units of the park system alone reached more than eight and a third millions for the past official year.

Leading this parade were the Great Smoky Mountains in Tennessee and North Carolina with 1,247,029. Shenandoah, previous year's leader, was second with 1,054,479 and Rocky Mountain was third with 685,393. Yosemite and Yellowstone were close runners-up with over 500,000 each.

Other Park Service areas, not listed as national parks, that reported breaking the half million mark were Fort McHenry National Monument and Historical Shrine, Colonial National Historic Park, Gettysburg National Military Park, Lincoln Memorial and Washington Monument in the District of Columbia, Boulder Dam National Recreation Area, and the Blue Ridge National Parkway.

[Continued on page 2461]

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[Continued from page 2460]

Other National Park areas that attracted a great stream of American "homeland tourists" included—Acadia in Maine, Bryce Canyon in Utah, the Carlsbad Caverns, Crater Lake in Oregon, Glacier in Montana, the Grand Canyon in Colorado, Grand Teton in Wyoming, Hawaii, Hot Springs in Arkansas, Isle Royale in Michigan, Kings Canyon in California, Lassen Volcanic in California, Monmouth Cave in Kentucky, Mesa Verde in Colorado, Mount McKinley in Alaska, Mount Ranier in Washington, Olympic in Washington, Platt in Oklahoma, Sequoia in California, Wind Cave in South Dakota, and Zion in Utah

WHEEL CHAIRS—A PREMIUM

One of those small, backwoods tabloid papers that seem to find their way somehow into homes where one expects better things—offers wheel chairs as a premium for selling subscriptions. In September, proudly proclaims the paper, two wheel chairs were awarded—one to a woman of 58 who had 265 subscriptions to her credit, and the other to a man of 34 with 250 subscriptions to his credit

It appears a very noteworthy deed, especially when one considers that a subscription to the publication costs only twenty-five cents per year and a wheel chair is no five and dime article. In addition the paper pays the freight charge to any point in the United States

To date, claims the paper, 1246 wheel chairs have been awarded to as many needy men and women

BUT, and it's a large but indeed, the same charitable paper endorses (and any publication that accepts an advertisement for its readers to see and read is practically endorsing it)—endorses such items as "false teeth by mail at \$6.50 with a 90-day trial," a doctor's information free for childless wives, a medicine for varicose veins to be applied with a paint brush, as well as several different versions about "what every husband should know"

Maybe they believe in making more "cripples" for bountiful subscription premiums

TYPING MEN

According to what young moderns are led to believe by one of the newer magazines published for their guidance—there are six types of men, viz

Type I A turtle-neck sweater plus cereal plus a gymnasium equals the athletic he-man or Ox. He likes his girls sweet, feminine and shy

Type II A plaid sports coat plus a swanky dinner plus a low-slung convertible equals the Big Shot—the best catch on the campus. He knows all about women so don't try a line

Type III A blue serge vest with a watch chain plus an empty country road equals the lonely worm. You must help him over embarrassing situations

Type IV A pork-pie hat plus a stein of foaming beer plus a booth at the Greek's equals the busy back-slapper. You must learn to feed his ego in public

Type V An open-neck shirt plus a bottle of red wine and a hunk of baloney plus a mass meeting equals the belligerent idealist. Don't try hair bows or glamour or purple lipstick with him

Type VI A stiff collar and string tie plus black coffee plus a desk piled high with books equals the intellectual grind. He doesn't care much for frivolities

* * *

Married men apparently have no rating in the classifications of the younger generations, so all benedicts, especially, can settle back in their uneasy chairs and placidly watch the younger world go by

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IN A LIGHTER VEIN

From *Parade*, the British Digest of Good Reading, we picked up the following choice items of a "grim business"

* * *

Of interest to the Neurologist

"Insomnia might bother us more than invasion. Sleeping upstairs is mainly a habit. It is just as restful to sleep downstairs if you organize it properly."

* * *

Of interest to the Psychiatrist

"The indifference of many to the most urgently reiterated advice about taking cover and staying away from windows. Those who sit at their bedroom windows, stand on their doorstep, lean over their front gates, especially during daylight raids, are taking big risks. Tell them that they are foolish and they laugh. 'Might see a dog fight,' is their excuse. They often do. No wonder foreigners look at us and tap their foreheads."

* * *

For the Gastroenterologist

"The consumption of tea which the Nazi bombers encourage is enormous during and after the raids. Tea drinking is bringing people into one another's kitchens, who a short while ago didn't know one another in the street. No bottle parties have ever been such fun as these post-raid teetotal libations."

* * *

For the Pathologist

(To be taken with a grain of salt.)
Schoolboy howler—"A therm is a microbe that gets into the gas meter and controls consumption."

For the Obstetrician

Another schoolboy howler—"Heroic couplets are a man and a woman who have many adventures and misfortunes and at last things are so bad they get married and have children."

* * *

To the Surgeon

War teaches surgeons. "It is too early to say whether victims of car and industrial accidents in the future will be helped by the lessons surgeons learn from the present war, but a look at the past, even so recent a past as the war in Spain, suggests that this may be so."

* * *

To the Medical Examiner

"The lads had presented themselves for medical examination, and Jimmy had been passed for service. Asked if he had any preference as to what he wanted to be, Jimmy replied, 'Yes.' 'Well, what would you like to be?' asked the officer. 'An ex-Serviceman with a pension,' was the answer."

* * *

And the Dietitian

"The patient was recovering from pneumonia. He had asked repeatedly for food and finally the nurse served him a mere spoonful of rice. A few moments later the patient called her and said, 'Now I want to read a little. Bring me a postage stamp.'"

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